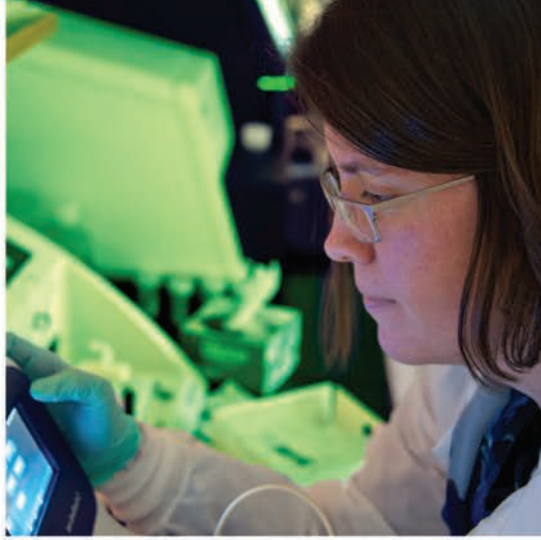
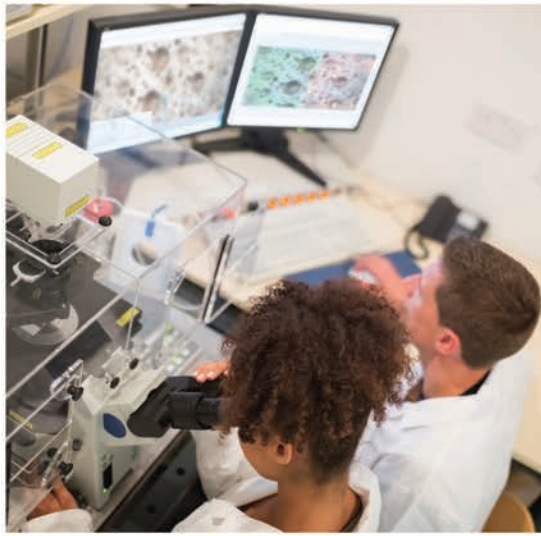
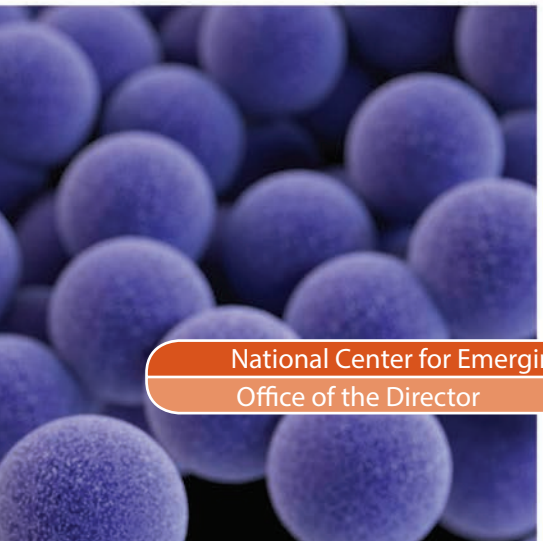




National Center for Emerging
and Zoonotic Infectious Diseases

Innovative Technologies


National Center for Emerging and Zoonotic Infectious Diseases
Office of the Director

DEPARTMENT OF HEALTH & HUMAN SERVICES USA
CDC

A novel solution for preserving test samples

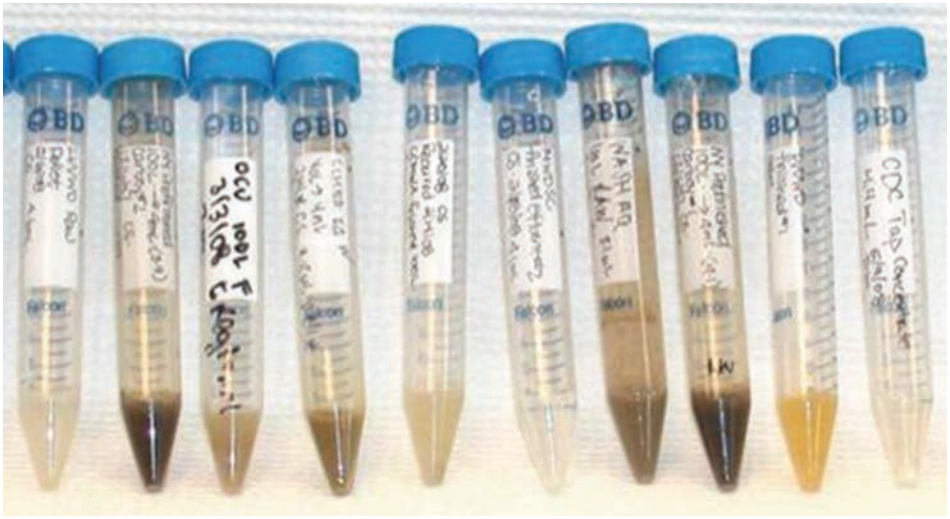
Waterborne disease prevention experts develop a new universal liquid buffer

PROBLEM

Molecular testing is an important tool for detecting and identifying germs in samples collected from the environment (like water) and from patients (like blood or stool). Samples collected for molecular testing typically need to be stored or transported at refrigerated temperatures until they can be tested in the lab. This can be challenging when working in the field or in resource-poor settings, because refrigeration is often not available or reliable, and access to laboratory testing facilities may be limited. When storing and transporting samples, it is important to have a way to preserve them for molecular testing without destroying the genetic material.

INNOVATION

NCEZID's waterborne disease prevention experts **developed a universal liquid buffer**, which preserves water and other clinical samples and keeps them stable and undamaged for up to 416 days depending on the temperature (ranging from 40°F to 95°F). Using this new technology, samples that are collected in the field and need to be transported to a laboratory facility for molecular testing can be stored either directly in the liquid buffer or on filter paper discs soaked in the buffer, called UNEX cards.



Concentrated freshwater and drinking water samples can be preserved for molecular testing by using the new buffer technology.

Like the liquid buffer, the UNEX cards preserve the genetic material in the sample needed for molecular testing and are very easy to transport. The UNEX cards and liquid buffer aid in safe handling of samples by inactivating the sample so it is no longer able to infect. This new technology provides an inexpensive way for the safe and stable storage of water and other samples collected in the field for transport to laboratories.

Recently, the UNEX cards were used to test 400 water samples that were sent to the NCEZID laboratory from Ghana and Ethiopia to confirm the presence of *E. coli*. The lab was able to process the 400 samples very quickly and economically—it cost only $100, or 25 cents a card. This technology opens the door for performing molecular testing in a variety of challenging environments, like large outbreaks in remote locations, where clinical and environmental samples can be safely collected, stabilized, and transported.

NCEZID scientist Jothikumar Narayanan, co-inventor of universal liquid buffer, holds a filter paper disc that was soaked in buffer.

Preserving samples