

CDC Lab Values

[Announcer] This program is presented by the Centers for Disease Control and Prevention.

[Narrator] There is a common theme to responding to disease outbreaks. *Find* the cause, *stop* the spread, and *prevent* it from happening again. A critical function of field workers at CDC is rapidly responding to emerging health threats around the world. But it's the quieter, less public part of CDC that makes our efforts to *find*, *stop*, and *prevent* outbreaks possible—reliable, state-of-the-art lab work.

More than 1,500 scientists fill the lab benches at CDC, many of whom are top experts in their field. They log more than four *million* hours each year, sometimes working with the deadliest diseases in the world, to protect the health of Americans.

Dr. Dianna Blau is a Senior Science Advisor in the Infectious Disease Pathology Branch. Her lab investigates infectious diseases that don't yet have a known cause.

[Dr. Blau] Our lab is sometimes seen as a last option. When states or other partners can't determine a cause of death or illness, they send the tissue specimens to us. The most common things we see in our lab are flu, mycobacterium, bacterial pneumonia, and staph infections. We're often able to provide peace to family members when a loved one dies. About two-thirds of specimens sent to us remain unexplained. In those cases, we work hard to link unexplained deaths with other cases to see if there are any similarities. Our goal every day is to use our excellent scientists, vast specimen database, and extensive testing capability to give families answers where they previously had none.

[Narrator] One of the oldest labs at CDC, started in 1951, also handles unknown specimens. The Special Bacteriology Reference Lab is *the* resource for states or hospitals that come across an unknown bacterial outbreak or case. Dr. John McQuiston is the lab's team lead.

[Dr. McQuiston] We work with rare and unusual bacteria. Our lab can identify over 500 different species, and we typically name four to five new species each year. We were involved with the original listeria outbreaks of the 50's and 60's and the Legionnaire's disease outbreak of the 70's. At that time, both of these diseases were unknowns. We spend much of our time helping state health departments test for uncommon bacteria. We're also the home of MicrobeNet, a rapidly expanding online reference laboratory to help states identify these rare diseases faster.

[Narrator] One of CDC's labs focuses on small bugs that can cause big problems—ticks. Lindsay Killmaster manages a tick lab.

[Lindsay Killmaster] Our lab doesn't work with the biggest and baddest diseases out there, but we do work with things that anyone who spends time outdoors has to deal with. We have the largest collection of tick colonies in the U.S., and we use them to study ticks, learn how they transmit illness, and try to find ways to reduce human risk, as well as develop new ways to diagnose these diseases. Sometimes we're called upon to help identify causes behind tickborne disease outbreaks around the world, but we also go to different areas locally, like state parks, where we collect ticks and test them to see what they're carrying.

[Narrator] CDC also tests for enteroviruses. These are very common viruses that cause 10 to 15 million infections each year. In the fall of 2014, the U.S. saw a huge increase of EV-D68 cases. Dr. Steve Oberste is the Chief of CDC's Polio and Picornavirus Lab which identified the cause of the outbreak.

[Dr. Oberste] The enteroviruses in general are fairly unpredictable in their circulation. Often, there will be a single enterovirus that will be predominant in a given year; the next year it may be gone and another virus will predominate. In the case of EV-D68, we had seen very little activity since the virus was discovered over 50 years ago. Only a handful of detections in the U.S. until about five years ago, in which there were some small clusters. This year we've had well over 1,100 confirmed cases in the U.S. In response to the big outbreak, and because the test we had been using was fairly complicated, we developed a specific EV-D68 test that let us run a lot more at one time. So we could run well over 100 samples in a day, if necessary.

[Narrator] The steady, constant work in CDC's laboratories touches the lives of every American, either through direct testing or by the lessons learned from the research they do. CDC has been a leader in laboratory science for decades, and is always enhancing its work through technology, safety, and quality improvements.

[Announcer] For the most accurate health information, visit www.cdc.gov or call 1-800-CDC-INFO.