

First US MERS Imports Test CDC Readiness

By Daniel DeNoon, Senior Technical Writer, CDC.



Congressman Steve Womack of Arkansas views MERS-CoV virus through a microscope (Photo by Amanda Mills)

At 2:10 p.m. on Friday May 2, 2014, CDC alerted the news media that the first case of Middle East Respiratory Syndrome (MERS) had entered the United States. It came as a surprise to many Americans, but not to the nation's health protection agency.

CDC's work on the coronavirus that causes MERS—MERS-CoV—had been underway for two years. In 2013, when MERS cases increased on the Arabian Peninsula, CDC activated the Emergency Operations Center (EOC) to prepare for the possibility that an infected person might enter the US.

"It had been putting additional demands on us for some time, even before activation of the EOC," said Mark Pallansch, PhD, director of the Division of Viral Diseases in CDC's National Center of Immunization and Respiratory Diseases.

The CDC MERS response built on experience gained during the H1N1 flu pandemic, and the recent emergence of other microbial threats such as H7N9 flu in China, said Richard Dunville, MPH, MERS incident management coordinator.



David Swerdlow, MD (Photo by Greg Knobloch)

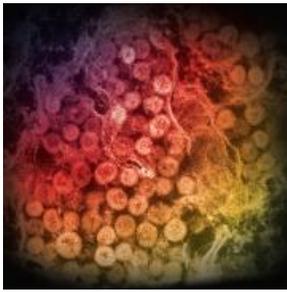
"We expected MERS-CoV to make it to the United States," said David Swerdlow, MD, incident manager for the MERS response. "We enhanced surveillance and laboratory testing capacity in states to detect cases; we developed guidance and tools for health departments; we provided recommendations for healthcare infection control and other measures to prevent disease spread. We provided guidance for flight crews, EMS units and customs and border protection officers about reporting ill travelers to CDC."

Being prepared was one thing; immediate response was another. There was no weekend leave for many CDC staffers on that early May weekend—or two weeks later, when CDC labs working on a Saturday confirmed a second MERS importation. That weekend alone, CDC staff put in over 1,000 hours.

"Most things seem to happen on weekends," Pallansch said. "Three different parts of the labs were involved, which meant reaching out to more than just the respiratory disease lab to find people who could process samples, perform testing, and of course link the results back to the epidemiology folks. It meant working after hours and people working all weekend. People were here until two in the morning on Saturdays just to get things processed."

And that was just the lab work. Overall, some 400 CDC staffers provided logistics, staffing, communications, analytics, management, and other support functions for the response. CDC and its public-health partners reached out to the two MERS patients' 632 contacts—a massive undertaking involving 175 CDC staff that by June 11 was 97 percent complete.

Surveillance guidelines, updated as more information became available, were quickly generated and disseminated. These included instruction for aircraft crew on how to identify and handle passengers with possible MERS-CoV infection and a case definition for Persons Under Investigation—ill travelers who meet specific criteria for possible MERS-CoV infection.



The Middle East Respiratory Syndrome coronavirus causes the condition known as MERS-CoV

Perhaps most importantly, as most person-to-person MERS transmission has occurred in healthcare settings, CDC issued detailed infection-control guidelines for hospitals and for doctors who suspect a patient might have MERS.

"We wanted to make sure that when doctors saw anyone with a possible MERS illness they would know how to test for it, where to send samples, and what to do in terms of infection control," Swerdlow said.

Another major piece of the response was to make sure travelers had the information they needed to protect themselves against MERS infection. Messages addressed to travelers to the Arabian Peninsula, in English and Arabic, appeared on CDC-owned monitors in 14 US international airports. Guidelines for travelers to the Arabian Peninsula appeared on conspicuously placed health-advisory posters in the 22 airports around the country that account for most travel to and from MERS-endemic nations.

Keeping the public informed about what CDC did and did not know was a complex task. The communication task was to relay CDC's need to proceed with an abundance of caution without exaggerating the threat. Person-to-person spread of MERS has required close personal contact, usually in a healthcare setting. Yet it was important to make the public understand that while the anticipated risk was low, there is much that isn't known about MERS-CoV – and CDC's job is to take every precaution.



Anne Schuchat, MD (Photo by James Gathany)

"We expected that people would understandably be concerned by this news and would want to know what they should do," said Anne Schuchat, MD, director of the National Center for Immunization and Respiratory Diseases. "We advised people to help protect themselves by washing hands often, avoiding close contact with people who are sick, avoiding touching their eyes, nose, and mouth with unwashed hands, and disinfecting frequently touched surfaces. We don't know exactly how this virus spreads, but we encouraged people to take these common steps."

None of this added up to just another day at the office, but the effort was nothing CDC hasn't done before.

"We have done things like this during multiple activations," Swerdlow said. "That kind of familiarity is very beneficial. It helps when everybody already has a sense of what needs to be done and how to get things done."

While the current response is winding down, everyone at CDC knows that the next MERS importation may be arriving on the next flight. The effectiveness of this recent multidisciplinary response makes Pallansch confident that we'll handle it with aplomb.

"We showed we can build on our preparedness and effectively manage a complex situation," he said. "I think the folks worked on this response really did a credit to themselves and to the agency – and our investigation is still ongoing."

See the latest press release: [MERS-CoV not spread to household members or health care contacts of the two U.S. cases](#)

CDC Intranet: CDC Connects/Inside Story. June 16, 2014.