

No mishaps at high-risk labs in Lansing

Justin A. Hinkley, Lansing State Journal Published 4:58 p.m. ET May 28, 2015 | Updated 6:17 p.m. ET May 28, 2015



(Photo: Photo provided)

LANSING – In April 2012, containers of a bacteria that can be inhaled and cause headaches, fever, anorexia and more were found outside the safeguards of a high-security biosafety lab at the University of Michigan.

INTERACTIVE: Biolabs in your backyard ([/pages/interactives/biolabs/](#))

Tests of 17 lab workers proved negative for the bacteria, [Brucella](http://www.cdc.gov/brucellosis/index.html) (<http://www.cdc.gov/brucellosis/index.html>), and area emergency rooms reported no cases of related illnesses. A lab worker told U.S. Centers for Disease Control & Prevention inspectors and U-M officials that the materials had been deactivated, though documentation of such wasn't found.

The incident happened at one of three Michigan lab facilities, two of which are in Greater Lansing, that are rated to work with some of the most dangerous bacteria and viruses in the world. And it highlights the risk of these facilities nationwide, often located near downtowns, shopping districts and university campuses.

From USA Today: [Inside America's secretive biolabs \(\[/story/news/2015/05/28/biolabs-pathogens-location-incidents/26587505/\]\(#\)\)](#)

No mishaps have happened at the two Greater Lansing labs, the [State Joint Laboratory](http://www.michigan.gov/mdch/0.4612.7-132-2945_5103-14811-00.html) (http://www.michigan.gov/mdch/0.4612.7-132-2945_5103-14811-00.html) in north Lansing and the [Diagnostic Center for Population & Animal Health](http://www.animalhealth.msu.edu/) (<http://www.animalhealth.msu.edu/>) at Michigan State University.

But a USA Today Network investigation identified hundreds of lab mistakes, safety violations and near-miss incidents nationwide in recent years, from missing bacteria to infected lab mice escaping to wild animals making nests with research waste. Just Wednesday, the Pentagon confirmed that a U.S. military lab [had inadvertently sent \(\[/story/news/2015/05/28/labs-possibly-got-anthrax-shipment/28069017/\]\(#\)\)samples of live anthrax to nine states.](#)

Accidents last year at the CDC and the National Institutes of Health show "the very best labs are not perfectly safe," says Harvard University epidemiologist Marc Lipsitch.

Still, Sandip Shah, director of the Michigan Department of Health & Human Services' [Bureau of Laboratories](http://www.michigan.gov/mdch/0.4612.7-132-2945_5103-15158--00.html) (http://www.michigan.gov/mdch/0.4612.7-132-2945_5103-15158--00.html), told the State Journal safety procedures are sound and such labs make the world safer by identifying threats so emergency responders can effectively tackle a crisis.

"These bugs are not crawling by themselves, they are stored in a facility that is fully secured, inspected and monitored," Shah said. "You could get these agents right when you're working in your farm. You can get these bugs right from your neighbor. Somebody could be sitting next to you on the plane."

"With this facility we have here" in Lansing, he said, "you are much safer than you are on your own."



8 million tests

The state lab at [3350 N. Martin Luther King Jr. Boulevard](#)

In this photo provided by Michigan State University, a technologist wearing a PAPR (powered, air-purifying respirator) works with samples in a biosafety cabinet at the MSU Diagnostic Center for Population & Animal Health. (Photo: Photo provided)

(<https://www.google.com/maps/place/3350+N+Martin+Luther+King+Jr+Bvd.+Lansing.+MI+48906/data=I4m2!3m1!1s0x8822eaf9af4c0c8b:0x6b1f651ddee3b?sa=X&ei=FFBnVcWKBJCmyASE04L4Aw&ved=0CB4Q8gEwAA>) is an advanced reference lab for the CDC, meaning it is among [a network of labs](#)

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around the country (<http://www.bt.cdc.gov/lm/>) that test for biological threats. The lab was involved in testing during the post-9/11 anthrax scare, in which suspicious white powders were sent to politicians and government employees around the country, and in the Ebola emergency last year (http://www.michigan.gov/documents/mdch/LabLink_Fall_14_Final_474781_7.pdf).

That facility is also the reference lab for the state, meaning that when hospitals, private research facilities or the more advanced doctors' offices here have substances they can't handle, "all of that ends up on my doorstep," Shah said.

At MSU's Diagnostic Center off Beaumont Road just south of Forest Road

(<https://www.google.com/maps/place/Diagnostic+Center+for+Population+and+Animal+Health/@42.7032237,-84.4717848,17z/data=!4m2!3m1!1s0x0:0xe766607b13e44>) in East Lansing, scientists help veterinarians diagnose sick animals. Most of the agents that come into the lab are agricultural and don't transmit between humans and animals, said Jamie Willard-Smith, MSU's biosafety officer. But technicians do work with Mycobacterium tuberculosis, which can be spread through the air (<http://www.cdc.gov/tb/topic/basics/default.htm>). A Meridian Township deer confirmed this week (/story/news/local/2015/05/26/deer-wasting-disease-found-meridian-township/27970055/) to be infected with chronic wasting disease was tested at the MSU lab.

But at both facilities, the riskiest tests are a relatively small part of what they do.

Shah said his lab's Infectious Disease Division usually receives about 129,000 samples a year, and its Chemistry Division, which also tests for things like lead or DDTs in soil, receives between 110,000 and 120,000 samples a year. The lab performed 7 million tests last year, but the bulk of those were for newborn screening (<http://www.michigan.gov/mdch/0.1607.7-132-2947-233939--.00.html>) — routine tests of blood samples from every baby born in the state.

The MSU lab performs about 1 million tests on 182,000 cases a year, university spokesman Jason Cody said. But most tests are performed on lower-risk materials, he said.

The state lab has 112 employees. The MSU lab has 120.

At the state lab, most of its on-site dangerous substances kept for research were destroyed in 2005, Shah said. But a small amount of materials, such as Brucella, are kept on site for quality control purposes, though in a treated, "less pathogenic (state) than what you would see in the wild," he said.

Willard-Smith said the most dangerous materials are not kept at the university. After testing, they are either destroyed or sent on to other labs for further diagnostics.

'100% secure'



The lab at the MSU Diagnostic Center for Population & Animal Health is seen in this photo provided by Michigan State University. The lab is used primarily for diagnostic services performed to help veterinarians identify the cause of animal illness. (Photo: Photo provided)

Officials at both the state lab and MSU said their facilities are safe and secure.

At MSU, for example, Willard-Smith said security starts with planning for the types of materials that might come into the lab and "if there's any question, any doubt," substances are moved into the most secure labs. There are regular inspections and maintenance to control air flow and plans in place — including health agencies and law enforcement — in case emergencies happen.

"This facility was built in order to contain this type of organism," said Willard-Smith. "It's a highly, highly specialized facility with specialized employees working. And I'm very, very comfortable saying ... nobody should be uncomfortable being anywhere near our facility. It's one of the finest-built facilities in the country."

In addition to the necessary equipment and routine training on how to keep the dangerous materials in, both facilities have physical security meant to keep unauthorized people out. Officials described layers of security checkpoints, video cameras and more that are monitored around the clock.

"We are 100% secure," Shah said. "If you ask me who was in this area at 2 p.m. on February 17 of 2015, I can tell you."

And security is about learning from mistakes.

In response to the 2012 incident at U-M, "communication systems were reviewed, updated and additional emphasis was placed on timely communication," Rick Fitzgerald, a university spokesman, said in an email to USA Today.

But the USA Today Network investigation found one of the more troubling aspects of the high-risk labs sprawled across all 50 states is that even the federal government doesn't know where they all are. And that can challenge the state health departments who would have to respond in the event of an outbreak or some other crisis.

But Michigan has been highly rated by the CDC (http://www.cdc.gov/phpr/pubs-links/2012/documents/2012_factsheets_mi.pdf) for its preparedness and the state "is fully prepared to deal with public health threats in Michigan and maintains a full state of alertness and preparedness," said Jennifer Smith, a spokeswoman for the state DHHS.

USA Today reporter Nicholas S. Penzenstadler contributed to this report.

Michigan labs

The U.S. Centers for Disease Control & Prevention has four "biosafety levels" (<http://www.cdc.gov/training/QuickLearns/biosafety/>) to measure the level of controls needed to work with bacteria, viruses and other agents in laboratories. In Michigan, there are three "BSL-3" lab facilities certified to work with some of the most dangerous materials in the world.

State Joint Laboratory

The Michigan Department of Health & Human Services operates five BSL-3 labs at the State Joint Laboratory at 3350 N. Martin Luther King Jr. Boulevard in Lansing. These labs, used on a daily basis, test for "select agents," elements determined to pose "a severe threat," including those related to bioterrorism, as well as non-select agents such as tuberculosis. Michigan does not receive information about select-agent incidents in the state and relies solely on the Federal Select Agent Program for any follow-up.

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MSU's Diagnostic Center for Population & Animal Health, off off Beaumont Road just south of Forest Road in East Lansing, has one operational BSL-3 lab and one BSL-3 suite. The facility uses Mycobacterium ~~EXCHANGES FOR THIS CAMPAIGN WITH THANKSGIVING~~ which performed "very occasionally." MSU "does not routinely" work with research specimens because they mostly do diagnostics. They do not work with select agents, said Jason Cody, a university spokesman.

University of Michigan

The University of Michigan has two BSL-3 labs and one ABSL-3 lab, all located on its Ann Arbor campus. The labs are used to "investigate the basic biology and infectious cycles of both viral and bacterial agents and their specific interactions with the host," with the aim of finding "molecular targets amenable for therapeutic countermeasures" for treating infections. The labs are registered to work with select agents, and an example is "testing of new classes of antibiotics capable of killing the bacterial pathogen *Bacillus anthracis*," according to Jacqueline Hoats Shields, director of research compliance oversight at the university's Office of Research.

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