



STATE OF MICHIGAN

DEPARTMENT OF HEALTH AND HUMAN SERVICES
LANSING

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GOVERNOR

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FOR IMMEDIATE RELEASE:
April 7, 2021

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MDHHS Bureau of Laboratories a national leader in sequencing and identifying COVID-19 variants

LANSING, Mich. – Since shortly after the first positive COVID-19 test was diagnosed at the Michigan Department of Health and Human Services (MDHHS) Bureau of Laboratories (BOL) on March 10, 2020, BOL scientists have been busy genome sequencing the virus to identify variants.

More than 10,000 samples have been sequenced by BOL staff to date with over 4,200 of those tests completed in 2021.

“Our lab is a national leader in genome sequencing and our efforts have allowed us to implement rapid public health responses to slow the spread of outbreaks involving more easily transmitted variants,” said Dr. Joneigh Khaldun, chief medical executive and chief deputy for health. “We will continue to work to identify these variants in Michigan as an important tool in fighting this pandemic back in Michigan.”

Viruses are constantly changing, and this includes SARS-CoV-2, the virus that causes COVID-19. These genetic variations occur over time and can lead to the emergence of new variants that may have different characteristics.

The SARS-CoV-2 genome encodes instructions organized into sections, called genes, to build the virus. Scientists use a process called genomic sequencing to decode the genes and learn more about the virus. Genomic sequencing allows scientists to identify SARS-CoV-2 and monitor how it changes over time into new variants, understand how these changes affect the characteristics of the virus, and use this information to predict how it might impact health. Some variant viruses are of particular concern because they spread easier, cause more severe disease or may escape the body’s immune response.

The genome sequencing process takes about a week after the lab receives the positive test results. The MDHHS BOL is one of two labs in the state currently conducting sequencing and can process about 500-600 samples week. However, not every COVID-19 positive test is sequenced, which means additional cases of the variant could be present in the state.

Because sequencing of specimens associated with outbreak investigations is a priority, 2021 many of the samples sequenced were from a Michigan Department of Corrections (MDOC) outbreak with the remainder submitted from a variety of other locations throughout the state. As of April 6, 1,998 B.1.1.7 (U.K.) cases have been identified, with 513 of those (26%) connected to the MDOC investigation. Additionally, eight cases of the B.1.351 or South African variant have been identified, three cases of P.1 or the Brazilian variant and 16 cases of the B.1.427 and B.1.429 or California variant have been discovered.

“The presence of more infectious variants, such as the B 1.1.7 variant, threatens our progress in control of the epidemic and is likely contributing to our current increase in cases,” said Khaldun. “It is critical that we not let up now and I urge Michiganders to continue to mask up, wash their hands, social distance, get tested and get vaccinated as soon as possible.”

On a daily basis, scientists at the Bureau of Laboratories protect the health and safety of Michiganders by testing for hundreds of microbes, diseases and chemical substances in human, animal and environmental sources.

“The important testing being conducted by our highly qualified, skilled and dedicated scientists protects the health and safety of all Michiganders every day,” said Dr. Sandip Shah, BOL director. “Their work is allowing the state to effectively monitor and respond to environmental as well as public health threats and to expand investigation of potential contamination of public water and food sources.”

Tests can take from a few minutes to a few weeks and on an annual basis lab staff conduct nearly 6.8 million tests. This includes sexually transmitted diseases, influenza, *Salmonella*, rabies, lead, measles, newborn screening and hundreds of other tests.

The lab is also responsible for testing fish in the state’s lakes, rivers and streams for mercury, PCBs, dioxins and PFAS. These results are published in the Eat Safe Fish Guide which helps protect residents who eat Michigan fish by providing information on which fish are safe to eat and which ones to avoid.

It also completes newborn screening (NBS) where infants blood spots are tested for more than 50 potentially life-threatening diseases. Every year, the NBS program tests more than 120,000 newborns and identifies approximately 250-280 babies afflicted by one of the 54 blood-spot-testable disorders included on the NBS panel. Screening is completed between 24 and 36 hours after birth and lab staff work quickly to identify conditions that require immediate medical or nutritional intervention.

Michigan residents seeking more information about the COVID-19 vaccine can visit Michigan.gov/COVIDvaccine. Information around this outbreak is changing rapidly. The latest information is available at Michigan.gov/Coronavirus and CDC.gov/Coronavirus.

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