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Bureau Vision

The Bureau of Laboratories is a stronger, more diverse team within an integrated public health system. We utilize advanced technology and innovative leadership to provide comprehensive public health services in our dynamic global community.

Bureau Mission

We are dedicated to continuing leadership in providing quality laboratory science for healthier people and communities through partnerships, communication and technical innovation.



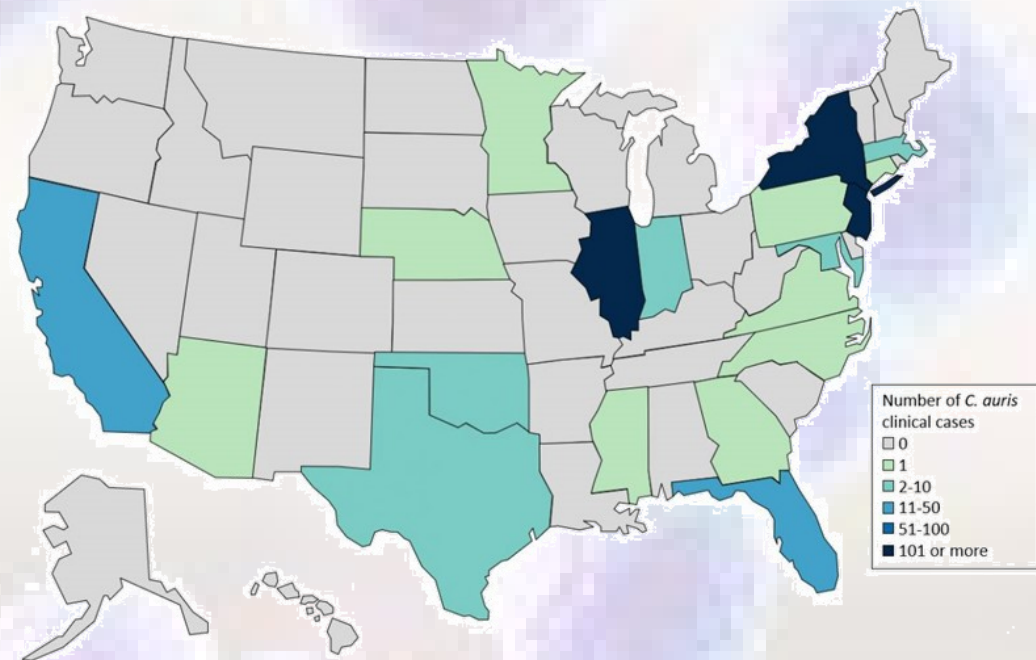
MALDI-TOF Yeast Identification at the Bureau of Laboratories

By Tonya Heyer

Candida auris is an emerging pathogen that causes fungal infections and poses a global health threat. Identified by Japan in 2009, *C. auris* has been detected in numerous countries including the United States. As of March 31, 2020, nineteen states have confirmed cases of *C. auris*: Michigan does not have any confirmed cases.

C. auris is resistant to many of the commonly used antifungals and may result in treatment with multiple classes of antifungals at high doses. *C. auris* can easily spread and cause outbreaks in healthcare settings. It is extremely important that *C. auris* is identified as quickly as possible to help keep the outbreaks to a minimum.

U.S. Map: Clinical cases of *Candida auris* reported by U.S. states, as of March 31, 2020



Bureau of Laboratories Role in the Community Health Emergency Coordination

The Bureau of Laboratories follows the National Incident Management System (NIMS) guidelines, a standardized system for emergency management and incident response activities utilizing the Incident Command System (ICS) as a common structure enabling organizations and agencies to work together in a predictable and coordinated manner. NIMS and ICS course training are required for all public and private agencies who receive federal preparedness funds.

How does this all come into practice during an incident for the BOL?

Public Act 390 provides support for planning, mitigation, response, and recovery; also, the creation of the Michigan Emergency Management Advisory Council. The Michigan Emergency Management Act prescribes the powers and duties of state and local agencies and officials.

The State Emergency Operations Center (SEOC) is where state, local, and federal agencies coordinate the response to a disaster, emergency, or act of terrorism. The Governor, State Director of Emergency Management, and Homeland Security are the lead agencies providing direction of all state resources at the SEOC when responding to and recovering from an incident. Under the direction of the Governor, the SEOC coordinates planning and response activities to support Michigan governmental actions. The SEOC also serves as the liaison to local, nonprofit, private resources, inter-state, and Federal Emergency Management Agency (FEMA).

The Michigan Emergency Operations Base Plan defines activities for MDHHS as the lead state agency for human and health service, including the Public Health Code, PA 368 and amendments. Emergency preparedness is the ability to respond to all types of public health incidents and to build resilient communities. The Bureau of Emergency, Trauma, and Preparedness (BETP) is the direct link to the emergency managers in the SEOC when the SEOC is activated.

MDHHS BETP maintains responsibility to coordinate the activities of the Community Health Emergency Coordination Center (CHECC). The CHECC can be activated in two ways: Michigan State Police - SEOC Activation for an emergency that has human health consequences or MDHHS activation by the department director along with a request for a public health emergency even if the incident has not yet been declared as an emergency or disaster. The CHECC utilizes NIMS and ICS, supports the SEOC, and coordinates with the Regional Medical Coordination Centers (RMCC's) & other partner agencies. The CHECC is a centralized operation that coordinates the MDHHS response overall, provides information to the MDHHS Executive Group, provides technical assistance and consultation, coordinates federal support and assistance, and disseminates public health and healthcare information.

The BOL has a role in the CHECC when the human health emergency requires laboratory testing or when the CHECC needs additional support staff for large scale incidents. The laboratory is aligned under the Operations Section, Public Health Branch. BOL representatives report to the Operation Section Chief following the ICS organizational structure. The CHECC Laboratory Operations staff works with the BOL Liaison to provide and disseminate pertinent laboratory information. The liaison relays BOL information to the CHECC Laboratory Operations staff for the information to move up the organizational chain.

The BOL has dedicated employees that act in the CHECC Laboratory Operations position and BOL Liaison position. These employees have successfully completed CHECC training, NIMS and ICS training, WEB EOC training, and MIHAN training. This additional training provides the employee with the necessary educational background to understand the basic operational components of the CHECC.

Flint Regional Science and Engineering Fair

By Sandra Lenneman, MT (ASCP) SBB, BOL Explore Lab Science Program

Annually, the Michigan Department of Health and Human Services Bureau of Laboratories Explore Lab Science* (ELS) participates in the Flint Regional Science and Engineering Fair (FRSEF). The fair is usually held at Kettering University for students on the east side of the state; however, because of the coronavirus pandemic and the “Stay Home, Stay Safe” executive order, the fair was held virtually. There are 3 divisions in the science fair: Elementary, Junior, and Senior. In April, the senior division competition was held. Winners of the senior division have a chance to earn money, scholarships, plaques, medals, and certificates. The top 3 overall winners are eligible to participate in the International Science and Engineering Fair.

The ELS special award is presented to the participants of the top 3 science projects involving a public health issue. Projects were judged on the proper use of the scientific method and project organization. The awardee’s project must address a public health issue, be creative, and innovative.

Project judging was provided by four ELS college interns. Virtual links to the science exhibits were provided by the FRSEF. Judges viewed each link and ranked the projects. The judges combined their scores, through online collaboration and analysis of each exhibit in order to reach agreement on the top three project awardees.

The senior division project finalists were presented with a certificate of achievement and a placement medal.

1st place was awarded to “DNA Damage Induced by Cell Phone RF Radiation.”

The study sought to discover any effects of degradation and base pair loss on DNA that cell phone radiofrequency radiation in the LTE band had using gel electrophoresis. It found that there was no statistical significance in the difference between exposed and unexposed DNA.

2nd place was awarded to “The Effect of Increased Oxygen Concentration on the Luminosity of Bioluminescent E. coli.”

The purpose of the study was to determine if bioluminescent E coli, when provided with additional oxygen, would produce bioluminescence that was brighter and lasted longer. The hypothesis of the study was to find alternative methods to decrease energy use and light pollution.

3rd place was awarded to “A Smart Aid for the Visually Impaired.”

The researcher developed a walking stick to be used by the visually impaired. The stick would emit an audible alert to oncoming walkers if they were too close to the visually impaired person.

In May, the junior and elementary division of the Flint Science Fair was held virtually. The junior level competition (grades 6th through 8th) and elementary level competition (grades 4th and 5th) had separate competitions, but were held on the same day.

The ELS special award was presented to the top 3 science project participants in each division. Projects were judged on the same criteria used for the senior division.

The junior division project finalists were presented with a certificate of achievement and a placement medal.

1st place was awarded to” A Simple Way to Reduce Radiation at Home.”

2nd place was awarded to “Early Earthquake Detection.”

3rd place was awarded to “Ultra-Violent Ultraviolet.”

The elementary division project finalists were presented with a certificate of achievement and a placement medal.

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1st place was awarded to [“To Dry or Not to Dry: Do Hot Air Dryers Spread Bacteria in Public Restrooms?”](#)

2nd place was awarded to [“Filtering Water Using a Variety of Efficient Filtration Methods.”](#)

3rd place was awarded to [“We Got the Beat! What is the Most Accurate Way to Monitor Heartrate?”](#)

*Michigan Department of Health and Human Services Explore Lab Science is the K-12 science education program sponsored by the Bureau of Laboratories (BOL). The goal of the program is to introduce students to laboratory science and promote laboratory and public health careers. The program offers science demonstrations as requested by schools and a website filled with fun science activities for K-12 grade students;

www.michigan.gov/explorelabscience.



LabLink is published quarterly by the Michigan Department of Health and Human Services, Bureau of Laboratories, to provide laboratory information to Michigan health professionals and the public health community.

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