

LabLink



Director, Bureau of Laboratories
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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.

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Updates on Prevalence, Reporting, and Isolation Submission Requirements of Carbapenemase Producing Organisms in Michigan

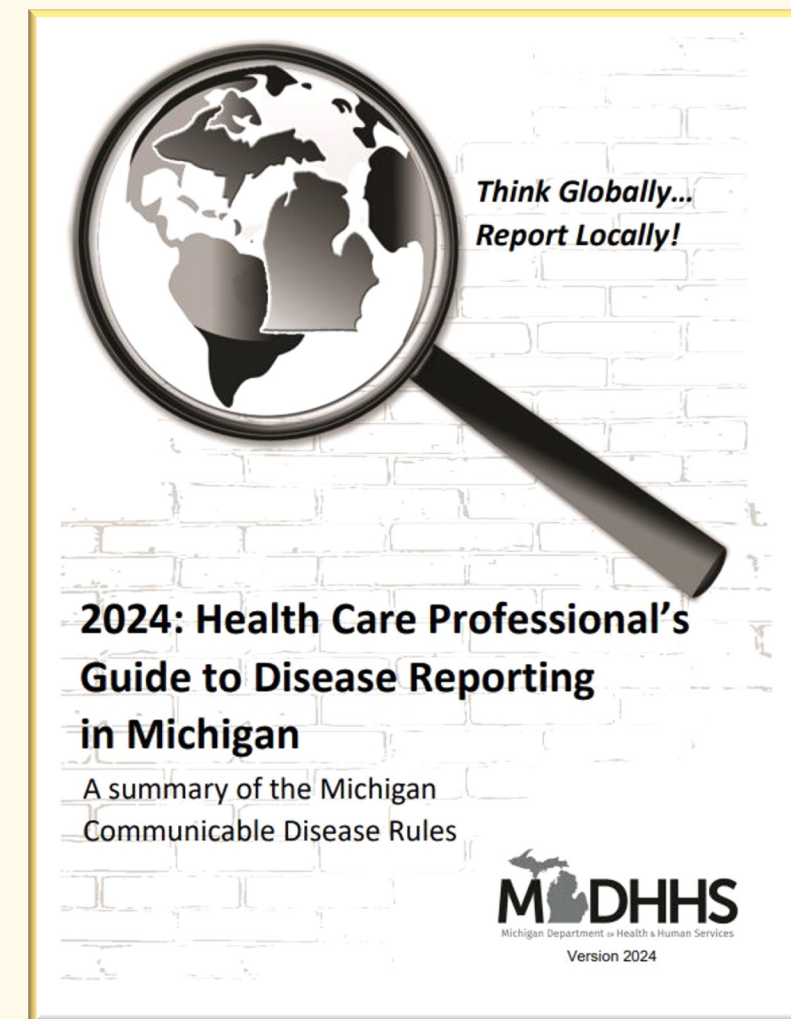
Kimberly McCullor, PhD, MSc, Microbiology Section Manager, Bureau of Laboratories

Carbapenems are considered one of the antibiotics of last resort for hard-to-treat gram-negative bacterial infections. Concerningly, carbapenem resistance via carbapenemase producing organisms (CPO) has continued to rise both at state and national levels. The Michigan Department of Health and Human Services (MDHHS) has worked closely with healthcare partners to ensure monitoring and surveillance of CPO prevalence throughout the state. In October of 2023, MDHHS released a surveillance report: [Carbapenemase-Producing Carbapenem-Resistant Enterobacterales \(CP-CRE\) in Michigan, 2018-2022.](#)

Some highlights from the report include:

- Prevalence of CP-CRE: a 31% increase in reported cases was noted in 2020, at the start of the COVID-19 pandemic, and another 39% increase occurred in 2022, coinciding with the inclusion of reporting for all genera of the order Enterobacterales and required submission of isolates for carbapenemase testing
- Organism/mechanisms: *Klebsiella pneumoniae* Carbapenemase (KPC)-producing *Klebsiella pneumoniae* remains the most prevalent CP-CRE. However, from 2020-2022, there was a notable increase in New Delhi metallo- β -lactamase (NDM) carbapenemase detections, particularly among *Klebsiella* spp., *Enterobacter* spp., and *Escherichia coli*
- Geographic distribution: the majority of CP-CRE cases were reported in Southeast Michigan, with the highest number of cases in the City of Detroit followed by Wayne and Oakland counties

MDHHS has expanded CPO surveillance submission requirements as described within the [2024 MDHHS Communicable Diseases](#) listings to include confirmed CPO cases (or suspect isolates when the referring laboratory does not perform carbapenemase testing) from any Enterobacterales, *Acinetobacter* spp., and *Pseudomonas aeruginosa* organisms. More information on isolate submission and reporting can be found within the [Carbapenemase-Producing Organisms \(CPO\) Case Reporting and Investigation Guidance.](#)



Hepatitis B Update: New Testing Recommendations

Cody Benfant, Virology Section, Bureau of Laboratories

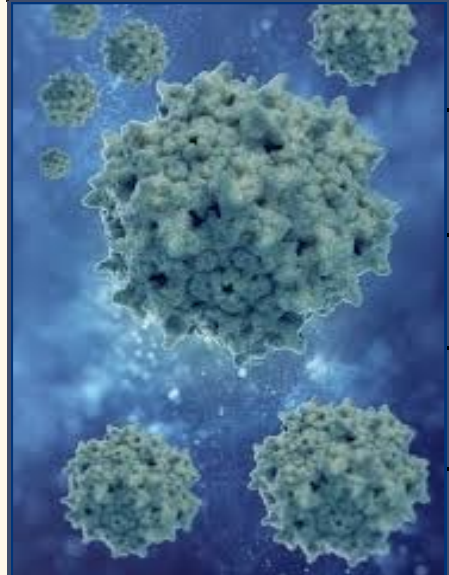
In March 2023, the Centers for Disease Control and Prevention (CDC) updated recommendations for hepatitis B virus screening and testing. The primary change involves screening all adults ages 18 and older with a serologic “triple panel” test that includes: hepatitis B surface antigen (HBsAg), antibody to hepatitis B surface antigen (anti-HBs), and total antibody to hepatitis B core antigen (anti-HBc). The addition of anti-HBc provides information regarding previous versus active infections with hepatitis B and is beneficial to monitor immunocompromised patients at risk for re-infection. Additionally, recommendations were updated for people at increased risk for hepatitis B exposure. The expanded “triple panel” offers a way to monitor patient populations on a more frequent basis; or periodic individual tests can be ordered based on the initial panel results. Pregnant people and infants benefit from the updated recommendations; all pregnant people require screening for HBsAg during the first trimester of pregnancy, regardless of risk factors or vaccination status. Infants are screened for HBsAg and anti-HBs if born to a HBsAg positive person. Consider ordering hepatitis B testing for any patient, regardless of exposure risk, as a means to establish hepatitis status.

Prior to updated recommendations, the BOL offered HBsAg and anti-HBs testing. To align with the updated CDC guidance, anti-HBc testing was added to the test menu. The additional test is performed using the Siemens Centaur XPT instrument, which is also used for HBsAg and anti-HBs testing. Using antigen-antibody binding and chemiluminescent technology, the instrument can generate results in approximately 1 hour. The new Hepatitis B Panel may now be ordered for specimens sent to the BOL. Serum is the only validated specimen source at BOL, and a minimum volume of 1mL is required.

When reviewing the “Hepatitis B Panel” results, **Table 1** helps interpret hepatitis status, provides additional actions, and is included at the end of all hepatitis B panel reports. For more information on the CDC’s updated guidelines, please visit the following website:

<https://www.cdc.gov/hepatitis/hbv/testingchronic.htm>

Table 1

| HBsAg | anti-HBs | anti-HBc | Interpretation | Action |
|--|----------|----------------|--|---|
| Present | Absent | Present | Acute or Chronic Infection | Link patient to hepatitis B care |
| Absent | Present | Present | Resolved infection | Counsel patient about HBV infection reactivation risk |
| Absent | Present | Absent | Immune due to receipt of prior vaccination (if documented complete series) | If no documentation of full vaccination, complete vaccine series per ACIP recommendations |
| Absent | Absent | Absent | Susceptible, never infected (if no documentation of full vaccination) | Offer patient hepatitis B vaccine per ACIP recommendations |
| Absent | Absent | Present | Possible interpretations when only anti-HBc is present: | Possible corresponding actions when only anti-HBc is present: |
|  | | | Resolved infection where anti-HBs levels have waned | Counsel patient about HBV infection reactivation risk |
| | | | Passive transfer of anti-HBc to an infant born to an HBsAg-positive gestational parent | No action |
| | | | A possible false positive, thus patient is susceptible | Offer patient hepatitis B vaccine per ACIP recommendations |
| | | | A mutant HBsAg strain that is not detectable by laboratory assay | Link to hepatitis B care |
| | | | Occult infection | Link patient to hepatitis B care |

Source: <https://cdc.gov/hepatitis/hbv/interpretationOfHepBSerologicResults.htm>
 Division of Viral Hepatitis, National Center for HIV, Viral Hepatitis, STD and TN Prevention

- Advisory Committee on Immunization Practices=ACIP
- Hepatitis B surface antigen=HBsAg, Hepatitis B surface antibody=anti-HBs, Hepatitis B core antibody=anti-HBc
- Immune if anti-HBs concentration is >10 mIU/mL after vaccine series completion
- Anti-HBs concentrations might wane over time among vaccine responders. People with a documented, complete hepatitis B vaccine series typically do not need to be revaccinated, except for special populations like patients on hemodialysis or health care personnel.

Hepatitis B Update: *...continued from page 4* Cody Benfant, Virology Section, Bureau of Laboratories

New Test Requisition Forms

New Viral Respiratory (MDHHS-6097) and Virology/Serology (MDHHS-6084) requisition forms simplifies the ordering process and are available on-line at:

<https://www.michigan.gov/mdhhs/doing-business/providers/labservices/test-request-forms>

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BOL Announces New HIV, Molecular, and Rabies Unit Manager

Bureau of Laboratories announces that Dr. Katie Margulieux was selected to be the HIV, Molecular, and Rabies Unit manager.

Katie, a recent fellow from the CDC Laboratory Leadership Service (LLS) Program, just completed her fellowship with the BOL as her host site. In addition to LLS, Katie served as a principal investigator at the Walter Reed Army Institute of Research working to develop novel therapies for wound infections. She worked as a post-doctoral fellow at the Armed Forces Research Institute of Medical Sciences in Bangkok, Thailand, working on projects involving surveillance of multi-drug resistant organisms. Katie received her Ph.D from the University of Virginia where she worked with *Bacillus anthracis* in a BSL-3 select agent environment. She comes to us with a wealth of research and public health experience.

The BOL looks forward to Dr. Margulieux's continued support within the Virology and Serology Section of the Infectious Diseases Division as well as the Virology section's strategic priorities, clinical testing activities, surveillance activities, and future endeavors. Congratulations Katie. Her official start date began March 18th, 2024.

