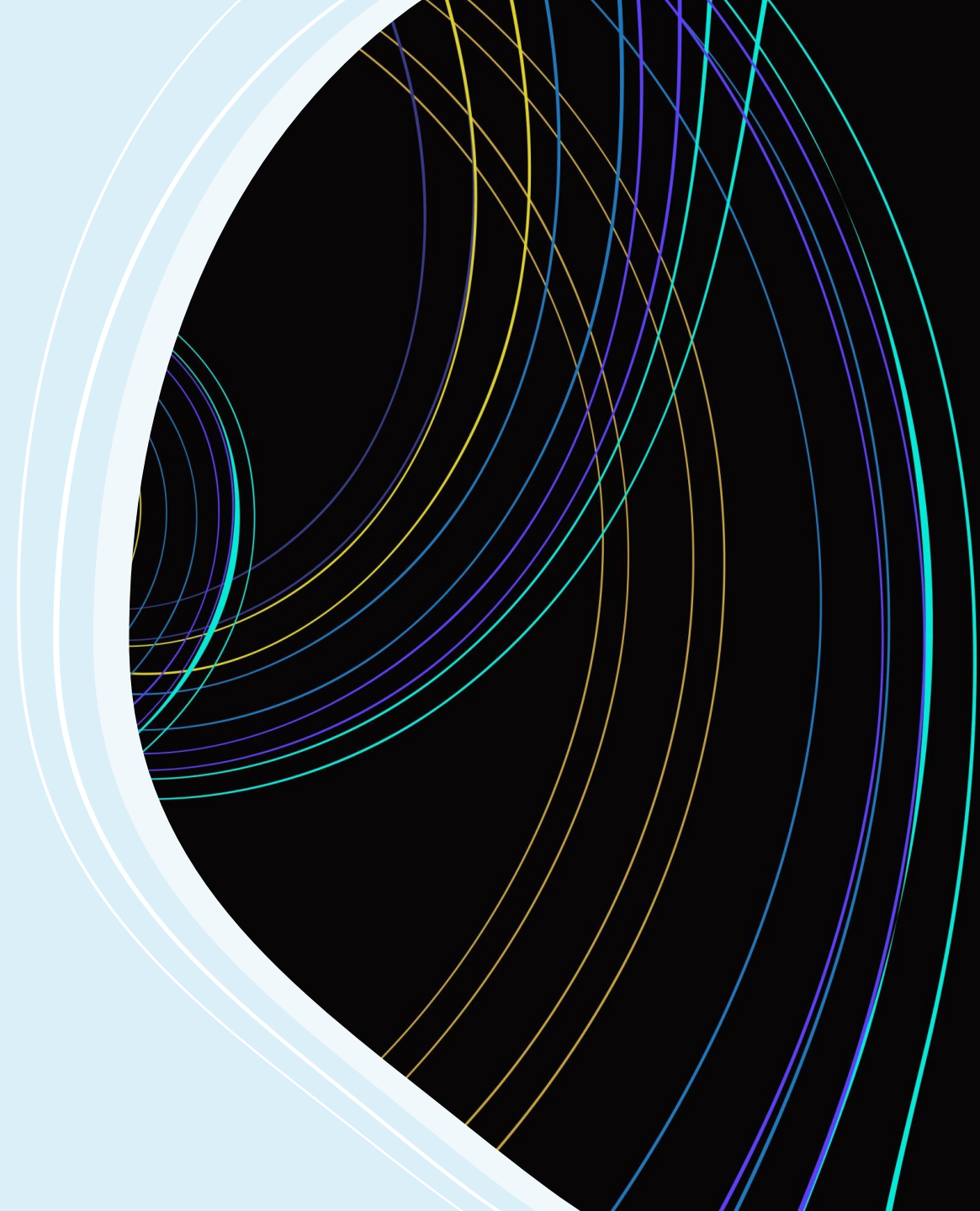

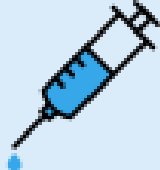


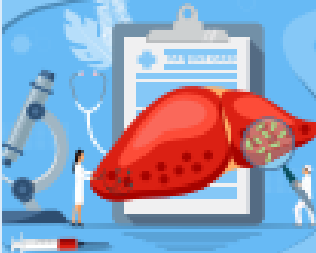










Hepatitis A and B: State Lab Testing Update

Rebecca S. Pelc, PhD, Virology/Serology Unit
Manager, NC State Laboratory of Public Health



Viral Hepatitis

Virus	Transmission Routes	Vaccine	Cure	Incubation	Symptoms of A, B & C
A	 Fecal/Oral	 Yes	 Recovery from illness results in lifelong immunity	 15 to 50 days	 <p>Loss of Appetite</p> <p>Nausea/vomiting</p> <p>Fever</p> <p>Joint Pain</p> <p>Dark urine/ clay colored stool</p> <p>Jaundice</p> <p>Right upper quadrant pain</p>
B	 Blood to blood & sexual contact	 Yes	 No cure (treatment available)	 1 to 4 months incubation <small>Most adult patients clear infection (~90%)</small>	
C	 Blood to blood	 No	 Curable (8-12 week treatment)	 2 weeks to 6 months incubation	

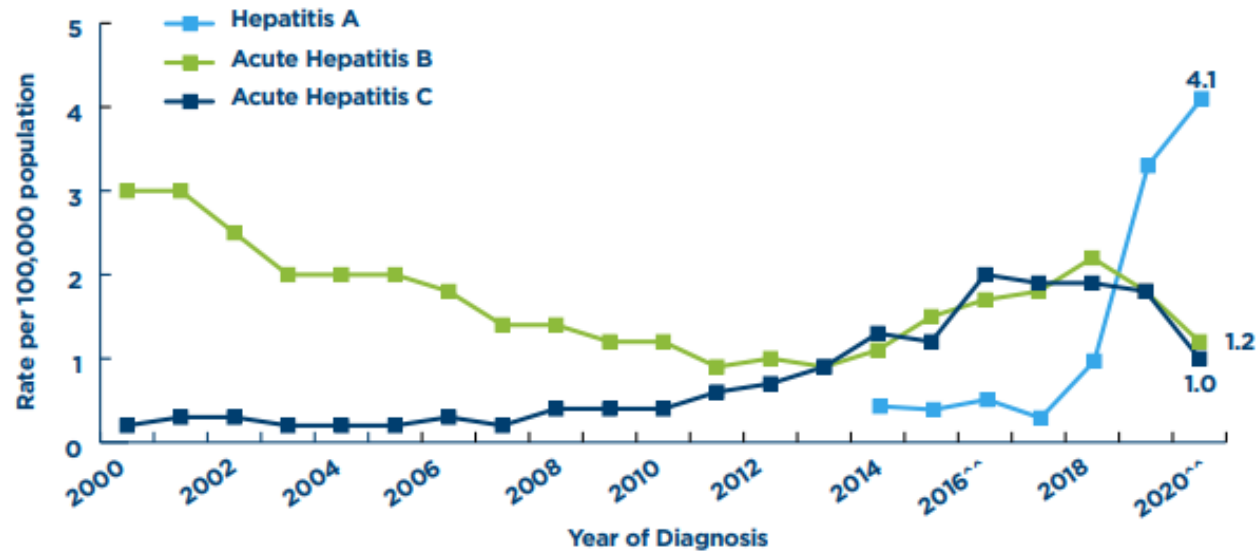
Viral Hepatitis

Risk of Transmission



Viral Hepatitis

HEPATITIS A, ACUTE HBV, AND ACUTE HCV RATES IN NORTH CAROLINA, 2000-2020*



Note: 2020 data should be treated with caution due to reduced availability of testing caused by the COVID-19 pandemic. Data is italicized for this reason.

*North Carolina has had an active outbreak of hepatitis A since April 2018.

**Case definition for HCV changed in 2016 and again in 2020.

Data Source: North Carolina Electronic Disease Surveillance System (NC EDSS) (data as of August 1, 2021).



**HEPATITIS B -
TESTING UPDATE**

Hep B Testing - CDC Guidance

- Expanded screening recommendation March 2023
- Screen all adults at least once
- Continue screening during each pregnancy
- Offer re-screen and vaccination to higher risk groups
 - Ex. Incarceration, hx STI or multiple sex partners, HCV positive
- Use the “Triple Panel” to test
 - Hepatitis B surface antigen, surface antibody, and core antibody total

The Triple Panel - Interpretation

- Surface antigen = Infection
- Core antibody = Exposure
- Surface antibody = Immunity

HBV/HAV Testing at SLPH

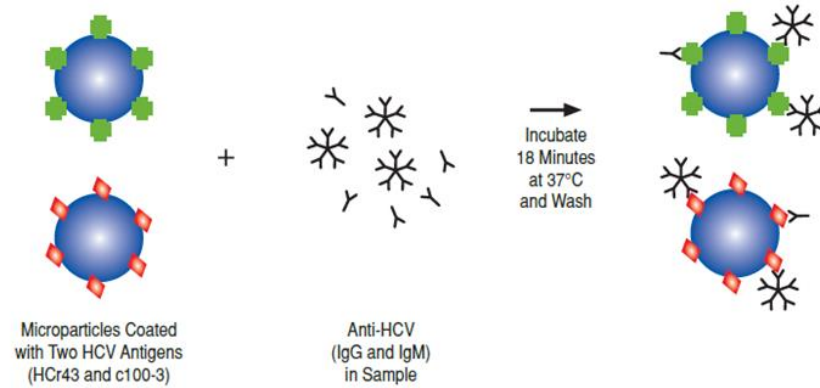
- **Have used the Abbott Architect CMLA technology since 2013**
- **Moving to the new Abbott Alinity instrumentation (made this transition for HIV/HCV in August 2022)**
 - **HBsAg (Hepatitis B Surface Antigen)**
 - **anti-HBs (Hepatitis B Surface Antibody)**
 - **anti-HBc (Hepatitis B Total Core Antibody)**
 - **anti-HBcIgM (Hepatitis B Core IgM Antibody)**
 - **anti-HAVIgM (Hepatitis A IgM Antibody)**

Note on HBsAg

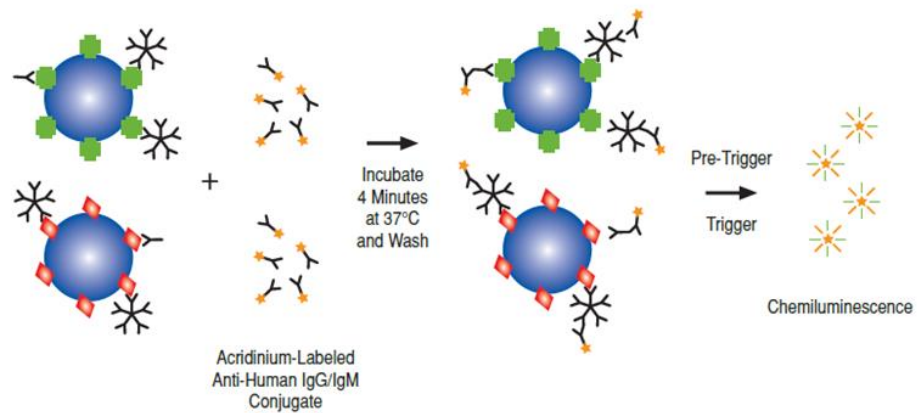
- **All reactives are repeated using the confirmatory test**
- **Confirmatory test is not orderable by itself, just a reflex**
- **Confirmatory=neutralization, distinguish specific from nonspecific binding**
- **Confirmatory test considered the definitive test**

CMIA Technology

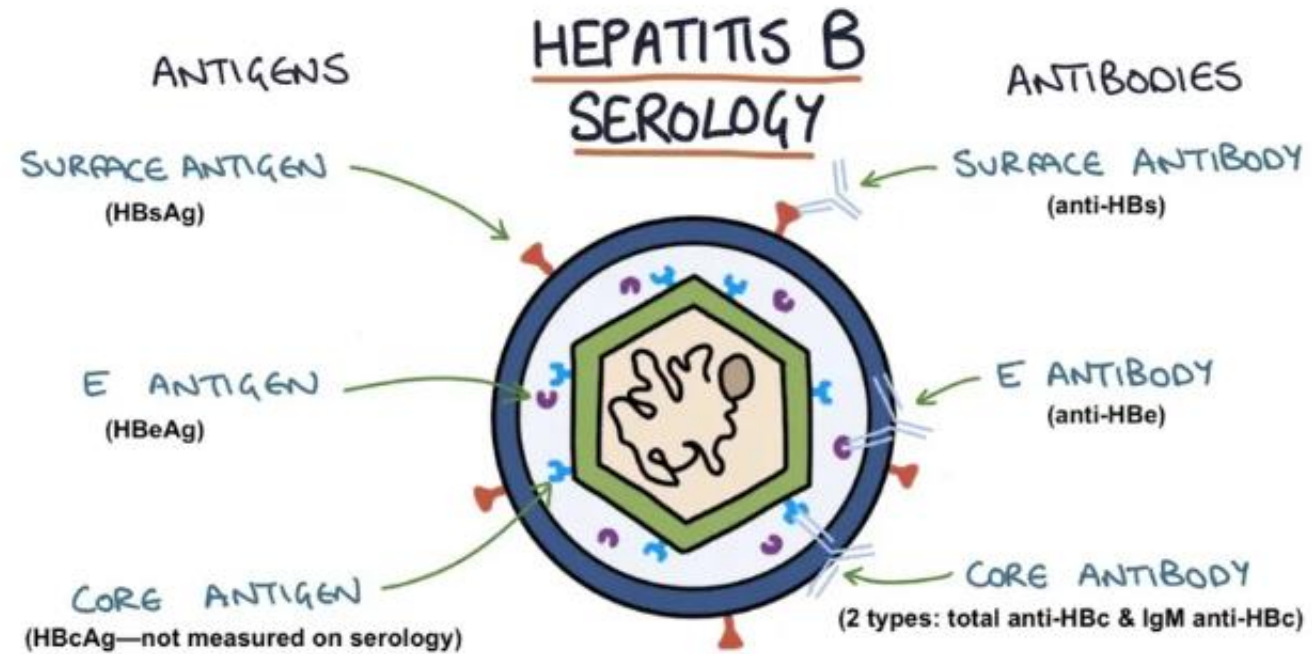
Step 1 Sample Capture



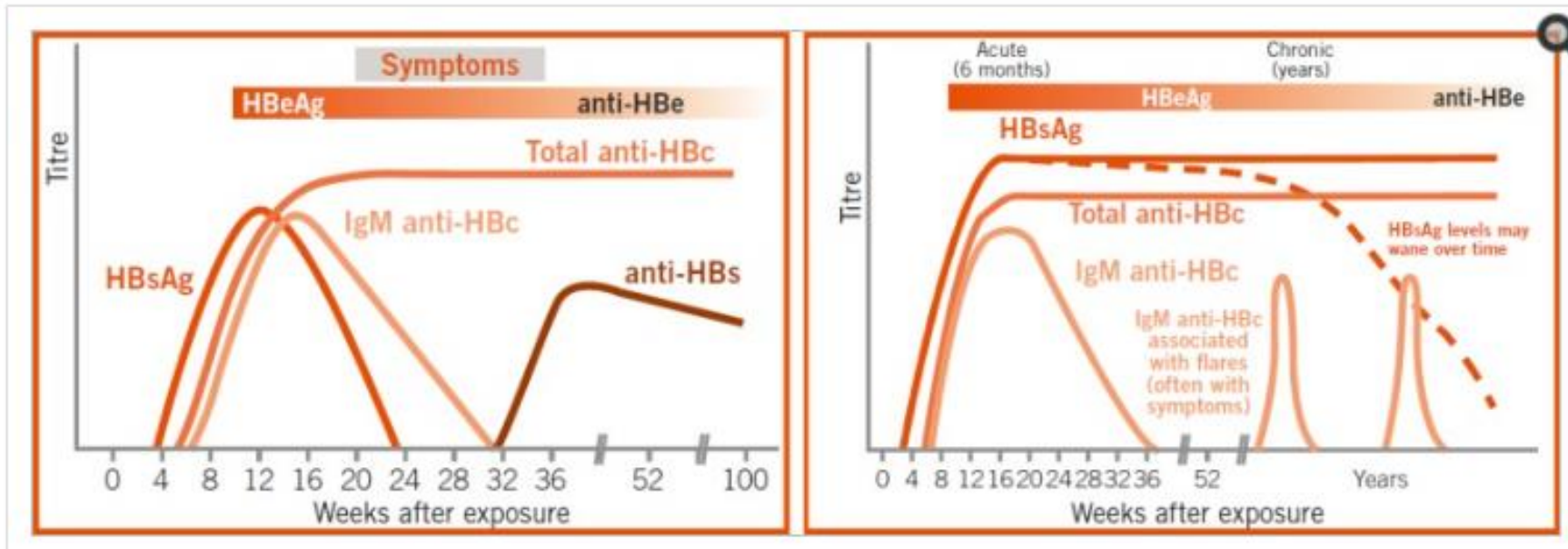
Step 2 Sample Detection



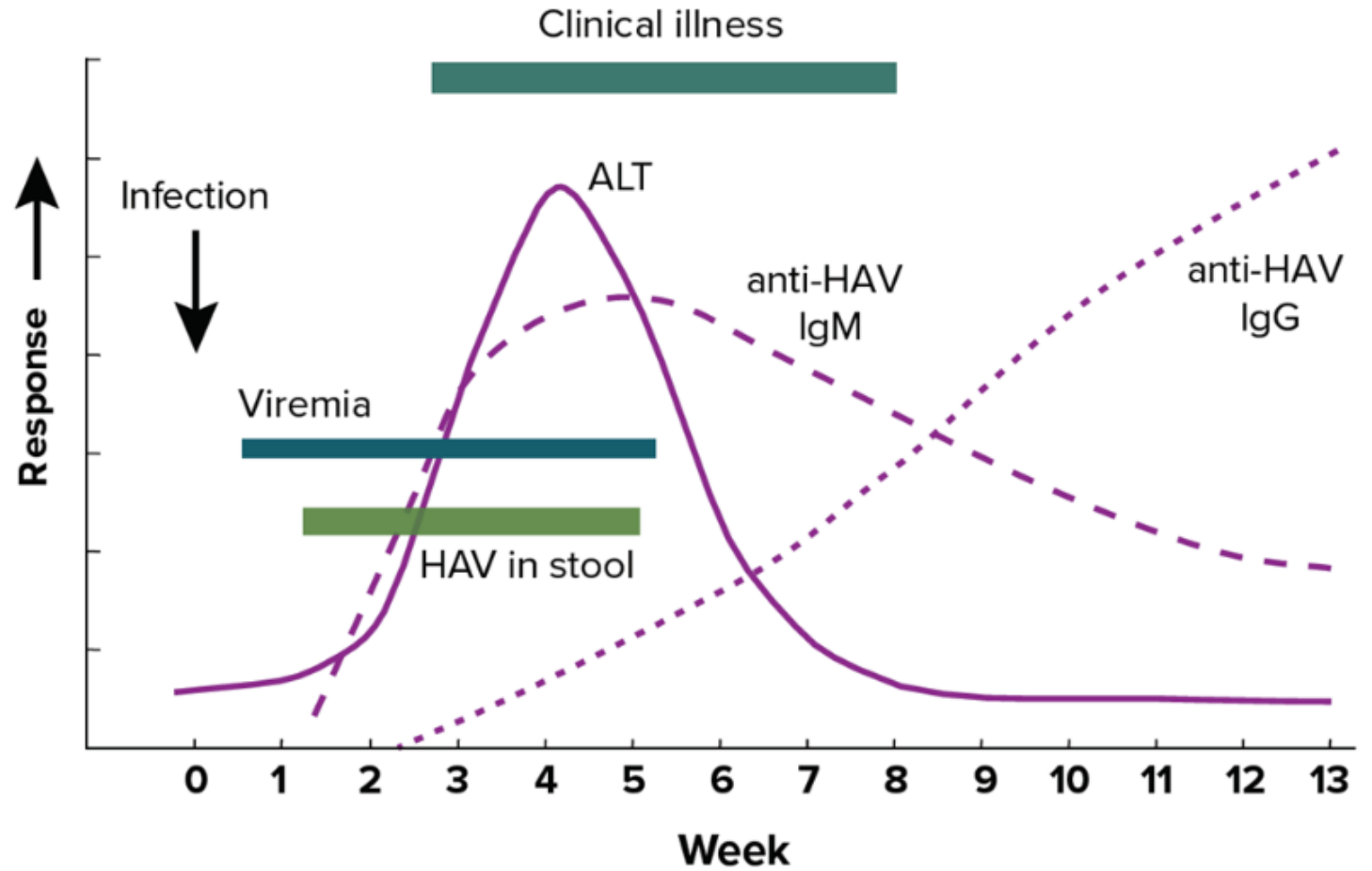
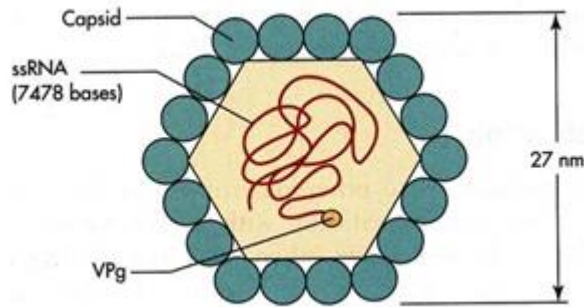
HBV Markers



HBV Kinetics Acute and Chronic



HAV Markers



Changes Accompanying Move to New Instrument

- **No changes to specimen collection or acceptance**
 - Serum must be received cold (2-8C) within 4 days of collection
 - Continue to utilize the same DOA Medical Courier process currently in place
 - Still requesting prior approval for HAV testing related to an outbreak (call Epi On Call 919-733-3419)
- **Fewer Panels → Only now 3 to choose from (down from 9)**
- **No changes made to first page of requisition, changes are to second page order chart only**

New Ordering

INSTRUCTIONS: Please check one panel (denoted by primary population). Hepatitis testing will reflect the panel markers indicated in the chart below. Make sure to print double sided or staple the two pages to prevent test ordering from separating from patient demographics.

HEPATITIS TESTING PANELS AND CORRESPONDING MARKERS

ORDER ONE	PANEL/POPULATION	MARKER				
		HBsAg ¹	anti-HBs ²	anti-HBc ³	anti-HBcIgM ⁴	anti-HAVIgM ⁵
<input type="checkbox"/>	HBV Screen	X	X	X		
<input type="checkbox"/>	Hepatitis Symptomatic	X	X	X	X	X
<input type="checkbox"/>	HAV Outbreak or Confirmation					X

¹HBsAg Hepatitis B Surface Antigen
²anti-HBs Hepatitis B Surface Antibody
³anti-HBc Hepatitis B Core Antibody
⁴anti-HBcIgM Hepatitis B Core IgM Antibody
⁵anti-HAVIgM Hepatitis A IgM Antibody

Comments:

*** Prior arrangements are required before submitting specimens for Hepatitis A outbreaks and other situations addressed above. To make arrangements, call (919) 733-3419; indicate on request form that such arrangements were made.**

SLPH Hepatitis Website:

- <https://slph.dph.ncdhhs.gov/virology-serology/serology.asp>

- SLPH Home
- A-Z Topics
- About / Administration
- Contact Us / Location
- Lab Test Results
- Biosafety
- Bioterrorism and Emerging Pathogens
- Chemical Terrorism and Threat
- CLIA Contract Program for LHDs
- Environmental Sciences
- Forms and Misc. Docs
- Hemachemistry
- Lab Improvement
- 2023 NC SciFest
- Microbiology
- Molecular Epidemiology
- Newborn Screening
- Virology/Serology
- Related Links

DHHS > DPH > SLPH

HAS YOUR CONTACT INFORMATION CHANGED? To prevent service delays, submit the following form <https://slph.dph.ncdhhs.gov/Forms/ClientChangeOfInformation-Fillable.pdf> or contact **CUSTOMER SERVICE** for assistance at 919-733-3937.



- About Virology / Serology
- Bacterial STD
- COVID-19
- Rabies Virus
- Serology
- Special Serology
- Virus Culture
- Zika Virus Testing

Environmental lab services for NC citizens

Public Health provides certain medical and environmental laboratory services (training) to public and private health provider organizations responsible for the assurance of the health of North Carolina citizens.

Measles (MPX) 2022 Updates

Public Health provides certain medical and environmental laboratory services (training) to public and private health provider organizations responsible for the assurance of the health of North Carolina citizens.

Hepatitis A and B

- **Form:**

- [DHHS-3722: Hepatitis Serology](#)

- **Serology Results Interpretations:**

- [Serology Results Interpretations Chart](#)

- **Resources:**

- CDC: [Screening and Testing Recommendations for Chronic Hepatitis B Virus Infection](#)
- CDC: [Interpretation of Hepatitis B Serologic Test Results](#)
- CDC: [Health Professional Tools for Viral Hepatitis](#)
- CDC: [The ABC's of Hepatitis for Health Professionals](#)
- APHL: [Viral Hepatitis Page](#)

Hepatitis B serologies are available for diagnosis of acute and chronic disease, for monitoring the course of disease and the effectiveness of therapy, and for screening select patient populations. Hepatitis A IgM testing is available on a limited basis for the diagnosis of acute disease.

Three types of testing panels are available: diagnostic, screening, and monitoring.

For specimen submission and shipping guidance, refer to our [SCOPE](#).

Hepatitis A and B Serology Interpretation Charts

Key:

Reactive:	+
Non Reactive:	-
HBsAg:	Hepatitis B Surface Antigen
anti-HBs:	Hepatitis B Surface Antibody
anti-HBc:	Hepatitis B Total Core Antibody
anti-HBcIgM:	Hepatitis B Core IgM Antibody
anti-HAVIgM:	Hepatitis A IgM Antibody

Hepatitis B Screen Panel

Interpretation	HBsAg [†]	anti-HBs	anti-HBc
Infected with HBV	+	-	+
Susceptible, never infected with HBV	-	-	-
Immune to HBV due to vaccination	-	+	-
Immune due to resolved infection	-	+	+
Interpretation unclear, may be a resolved infection (most common), chronic infection, or false positive	-	-	+

Hepatitis Symptomatic Panel

Interpretation	HBsAg [†]	anti-HBs [‡]	anti-HBc	anti-HBcIgM [§]
Chronic HBV Infection ¹	+	-	+	-
Acute HBV Infection	+	-	+	+
Susceptible, never infected with HBV ²	-	-	-	-
Immune to HBV due to vaccination ³	-	+	-	-
Immune due to resolved infection	-	+	+	-
HBV interpretation unclear, may be a resolved infection (most common), chronic infection, or false positive	-	-	+	+ or -

Interpretation	anti-HAVIgM [¶]
Infected with HAV	+
Not Infected with HAV	-

¹ anti-HBc IgM also might be positive in persons with chronic infection during severe HBV infection flares or reactivation.

² anti-HBs concentrations might wane over time among vaccine responders. People with a documented, complete HepB vaccine series typically do not need to be revaccinated, except for special populations like patients on [hemodialysis or health care personnel](#).

³ Immune if anti-HBs concentration is >10 mIU/mL after vaccine series completion.

[†] Patients with a reactive (+) HBsAg result are confirmed with a neutralization test. A "Not Confirmed" HBsAg Confirmatory result indicates the presence of Hepatitis B surface antigen could not be confirmed by neutralization. These patients should be evaluated for other serologic markers and retested for HBsAg in 4-6 weeks.

[§] Patients with "Grayzone" IgM antibody results should be retested at one-week intervals, if clinically indicated.

[¶] The immune status of patients with "Grayzone" surface antibody results cannot be determined. Consider other factors including clinical status, risk factors, and other diagnostic information.

IMPORTANT

- **Will go-live November 20, 2023**
 - **All specimens received for HAV/HBV Testing after go-live must include the new form**
 - **Any submitters from whom specimens received with the old form after that date will be called and asked to fax a new form**
 - **New form will be available on the website prior to go-live (shooting for November 15, 2023)**
 - **PLEASE DESTROY ALL OLD FORMS AFTER THIS DATE**
-

Questions?
