Hepatitis B and C Testing: Quality Assurance (QA) Manual

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VDH VIRGINIA DEPARTMENT OF HEALTH
Office of Epidemiology
Division of Disease Prevention

Revision History

This document and its revisions are maintained on the **DDP Community Partner Page**, in the *Viral Hepatitis Resources section*.

Please find a table outlining the revision history of the QA manual below.

Version	Updated Section	Revision Date
1.0	Hepatitis B and C Testing Guidelines: Draft	September 7, 2016
2.0	Full document revision	June 1, 2017
2.1	Contact information update	March 12, 2018
2.2	Collection of blood sample update	February 5, 2019
2.3	Hepatitis C Testing Guidelines update	October 21, 2020
2.4	Contact information update	February 28, 2022
3.0	Full document revision	May 20, 2024
4.0	Multiple section revisions; design update	September 9, 2024
4.1	Hepatitis C Testing Guidelines update	September 19, 2024
4.2	Contact information update	October 15, 2024

Table of Contents

Overview

Goals of the Viral Hepatitis Testing Program

- Increase the number of individuals who are aware of their hepatitis B virus (HBV) and hepatitis C virus (HCV) status
- Minimize the public health burden of infection with hepatitis B and hepatitis C virus
- Provide counseling for testing clients to decrease behaviors associated with transmission of HBV/HCV
- Link clients with positive HBV or HCV serology to care services

Intended Use

This document is intended to serve as a guide for viral hepatitis testing in local health departments (LHDs) that are funded through the Virginia Department of Health's (VDH) Office of Epidemiology (OEpi). This guide aims to help in the identification of those who would benefit from a test for HBV or HCV, the interpretation of test results, and subsequent steps for individuals with diagnosed infection.

Contact Information

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Relevant State Laws and Regulations

Commonwealth of Virginia State Board of Health Regulations for Disease Reporting and Control details state statutory authority and regulatory stipulations relevant to HBV and HCV testing and reporting. Reporting suspected and confirmed HBV and HCV cases is required by **§ 32.1-36** and **§ 32.1-37** of the *Code of Virginia* as enumerated by **12 VAC 5-90 sections 80 and 90** of the *Virginia Administrative Code*.

Submit a Confidential Morbidity Report (Epi-1) form to the nearest **local health department** within three days of identifying a suspected or confirmed case. The Epi-1 form can be accessed and submitted through the **Confidential Morbidity Report (Epi-1) portal**.

Reporting

- **12 VAC 5-90-80**. *List of diseases that shall be reported*. Full list of reportable diseases Board of Health identified as reportable. Acute and chronic cases of HBV and HCV are both listed in subsections A and B. Suspected or confirmed diagnosis should be reported within three days.
    - **§ 32.1-12**. *Regulations, variances, and exemptions*. Describes Board of Health

authority.

- **§ 32.1-35**. *List and reports of diseases and dangerous microbes and pathogens*. Describes the Board of Health's authority to promulgate a list of diseases, microbes, and pathogens that must be reported as well as its authority to prescribe the manner and time of reporting.
- **12 VAC 5-90-90**. *Those required to report*. Details who must report HBV and HCV test results and the specific reporting responsibilities of each category of reporter.
- **§ 32.1-36**. *Reports by physicians and laboratory directors*. Describes physician and laboratory director responsibilities concerning reportable diseases identified in 12 VAC 5-90-80. All information collected from clients is used for surveillance and investigation and is reported to VDH.
- **§ 32.1-37**. *Reports by persons other than physicians*. Describes other professional roles required to report suspected or confirmed cases of reportable diseases identified in 12 VAC 5-90-80. Details reporting responsibilities required of those in those roles.

Deemed Consent

- **§32.1-45.1**. *Deemed consent to testing and release of test results related to infection with HIV or hepatitis B or C*. Outlines deemed consent for testing and release of test results in potential occupational exposures. In situations where a healthcare provider, law enforcement officer, firefighter, emergency medical provider, or school board employee is exposed to a person's body fluids that may transmit HBV or HCV, the person whose body fluids were involved in the exposure is deemed to have consented to HBV or HCV testing and the release of those results to the exposed person. The same is true if a person is exposed to the body fluids of a member of any of the previously listed professions in a way that may transmit HBV or HCV.

Informed Consent

For a counselor to administer the test to a client, the client must first give consent. The following should be completed to ensure informed consent:

- Discuss the testing options available at the test site (rapid and/or conventional testing), the difference between a screening and confirmatory test, and the follow-up procedures for both a negative and a positive result.
- Ask the client if they have any questions or concerns about the test.
- Each site will follow its own procedure for obtaining a client's signature on the consent form they have in place.
- To release test results to anyone other than the client or VDH, the client must sign an authorization to release information.

Record Storage and Retention Requirements

Contractors must retain original Counseling, Testing, and Referral (CTR) test forms and other testing information containing patient identifiers for:

- Two years for hepatitis testing form, negative result

- Ten years for hepatitis testing form, positive result
- Ten years for Epi-1
- Five years for any client financial or referral information
- One year for risk assessments/data collection forms (such as client info forms, etc.)
- Two years for quality assurance and quality control records

When keeping hepatitis forms, the retention date begins January first (1) of the year after the test was done. For example, a negative CTR test form created in 2016 would be kept for two years (January 1, 2017, through December 31, 2018) and can be destroyed after January 1, 2019. Custodians of records must ensure that information in confidential or privacy-protected records is protected from unauthorized disclosure through the ultimate destruction of the information. Ultimate destruction is accomplished through cross-cut shredding, pulping, burning, overwriting, or otherwise physically destroying media. Deleting only the specific confidential or privacy-protected information within computer files or other electronic storage media is not acceptable.

Contractors should use the **Blank RM-3 Form** to document record disposal. If the contract agency ceases operations prior to the end of the appropriate retention period, or if VDH deems that confidentiality is not being maintained, all CTR test forms and other testing information containing patient identifiers must be returned to the Division of Disease Prevention (DDP) for storage.

Records containing Social Security numbers must be destroyed in compliance with **17 VAC 15- 120-30**.

Occupational Safety and Health Administration (OSHA) Requirements

All sites that collect blood samples for traditional and/or rapid testing must meet the **OSHA standards for blood-borne pathogens**.

Hepatitis B Virus Testing Guidelines

Determining Eligibility for Hepatitis B Virus Testing

VDH testing recommendations follow Centers for Disease Control and Prevention (CDC), United States Preventative Services Task Force (USPSTF), and World Health Organization (WHO) testing recommendations. Determine eligibility for testing using the criteria in Table 1.

In accordance with these recommendations, VDH funds HBV testing for uninsured, under-insured, and otherwise non-chargeable clients under the following circumstances:

- They meet at least one of the criteria in Table 1
- They request testing despite not meeting any of the criteria, subject to viral hepatitis program coordinator approval

Table 1: Hepatitis B Virus Testing Criteria
Universal Hepatitis B screening
People aged ≥18 years at least once in a lifetime using a triple panel test
All pregnant persons during each pregnancy, preferably in the first trimester, regardless of vaccination status or history of testing
Testing of persons with recognized risks, conditions, or exposures
Infants born to HBsAg-positive pregnant persons
People from geographic regions with a HBsAg prevalence of ≥2% (see **Appendix H**)
U.S. born persons not vaccinated as infants, whose parent(s) were born in geographic regions with HBsAg prevalence ≥8% (see **Appendix H**)
Persons who inject drugs or have a history of injecting drugs
Persons incarcerated or formerly incarcerated in a jail, prison, or other detention setting
Persons with HIV infection
Persons with HCV infection or a past HCV infection
Men who have sex with men (MSM)
Persons with STIs or past STIs or multiple sex partners
Persons who are current or former household contacts and/or sexual partners of HBV-infected people
Needle-sharing or sexual contacts of persons with known HBV infection
Persons with selected medical conditions who require immunosuppressive therapy
Persons with liver disease of unknown etiology (elevated ALT/AST)
Persons who engage in transactional sex work for money or drugs
Persons who have never been infected with HBV and either did not complete an HBV vaccine series per the **Advisory Committee on Immunization Practices (ACIP) recommendations** or who are known to be vaccine non-responders
Persons who are the source of blood or body fluid exposures (e.g. needle stick injury)

Collection of the Blood Specimen

All blood draws must be performed at the local health department. VDH funding does not support additional costs for blood draws or administrative expenses; therefore, if clients are referred to LabCorp, the cost of the blood draw must be paid with local funds.

VDH supports the triple panel test for HBV. This test aligns with current CDC recommendations for

screening and diagnosing HBV infection. It measures several hepatitis B virus-specific antigens and antibodies:

- Hepatitis B surface antigen (HBsAg)
- Hepatitis B surface antibody (anti-HBs)
- Total antibody to hepatitis B core antigen (anti-HBc)
- Immunoglobulin M antibody to hepatitis core antigen (IgM anti-HBc)

Triple panel test results can help providers do any of the following:

- Identify different phases of HBV infection
- Differentiate between acute and chronic infections
- Determine immunity and whether it is due to prior infection or immunization
- Identify patient susceptibility to future infection

Blood specimen collection supplies and requirements for serum (HBV combo test):

- Collection media: 5mL Gel-barrier tube, red top tube, or lavender-top (EDTA) tube
- Volume: 2.5mL of serum is the minimum amount required to run the HBV combo test but does not allow for repeat testing, 5mL preferred
- Specimen storage instructions: room temperature
- Sample stability: 14 days at room temperature, refrigerated or frozen, and three freeze/thaw cycles

For additional information refer to the LabCorp page for test order code 144473, **Hepatitis B Virus Screening and Diagnosis (Triple Panel)**.

Completion of the LabCorp OEpi Requisition Form

Eligible sites should use the OEpi LabCorp requisition form to request an HBV Screening and Diagnosis test (LabCorp test order code 144473) for patients who meet at least one defined criterion and are uninsured. Other hepatitis B tests are not authorized on the account.

Interpretation of Results

Refer to **Appendix A** to interpret the test results.

Follow-up and Reporting Procedures

- If the results necessitate a referral to care; provide the client with a local referral within their geographic area for follow-up care, and a copy of their test results.
- If determined to have HBV infection (HBsAg and anti-HBc (HBcAb) are positive) interpret and report anti-HBc IgM results as follows:
    - Positive results, report as acute
    - Negative results, report as chronic

- For further information about case classification, refer to the most recent CDC Hepatitis B case definitions:
    - Hepatitis B, Acute Case Definition
    - Hepatitis B, Chronic Case Definition
- Refer to 12 VAC 5-90 sections 80 and 90 for reporting regulations.

Hepatitis C Virus Testing Guidelines

Determining Hepatitis C Virus Testing Eligibility

VDH testing recommendations follow CDC, United States Preventative Services Task Force (USPSTF), and World Health Organization (WHO) testing recommendations. Determine eligibility for testing using the criteria in Table 2.

Table 2: Hepatitis C Virus Testing Criteria
Universal Hepatitis C screening
Adults aged ≥18 years at least once in a lifetime
All pregnant persons during each pregnancy
Anyone who requests a test regardless of risk
Testing of persons with recognized risks, conditions, or exposures
Persons who have HIV infection
Persons who ever injected drugs (PWID), shared needles, syringes, or other drug preparation equipment
Persons who are currently or who have ever received maintenance hemodialysis
Persons with liver disease of unknown etiology (i.e. persistently abnormal ALT/AST levels)
Persons who have ever engaged in intranasal drug use
Men who have sex with men (MSM)
Persons who engage in transactional sex work for money or drugs
Persons who received a blood or blood components transfusion or an organ transplant before July 1992, or received clotting factor concentrates produced before 1987
Persons with a history of tattooing or body piercing if the procedure was done in substandard conditions
Persons with a long-term, steady sexual partner who is HCV-positive

Table 2: Hepatitis C Virus Testing Criteria
Persons who have been or are currently incarcerated
Healthcare, emergency medical, and public safety workers after needle sticks, sharps, or mucosal exposures to HCV-positive blood
Infants and children born from an HCV-infected person (see next section for further detail)
Testing based on rapid test result
Persons with a positive rapid HCV antibody test result from a VDH-affiliated testing site (e.g. pharmacy testing partner, community-based organization)

Hepatitis C Testing Among Perinatally Exposed Infants and Children

Test all infants and children born to pregnant persons with current or probable HCV infection.

- Pregnant persons with detectable HCV ribonucleic acid (RNA) are considered to have current HCV infection. Pregnant persons are considered to have probable HCV infection if HCV antibody testing is positive, and HCV RNA is not available.

Test all perinatally exposed infants using a nucleic acid test (NAT) for HCV RNA at age two to six months to identify children who might develop chronic HCV infection.

- Care for infants with detectable HCV RNA should be coordinated in consultation with a healthcare provider with expertise in pediatric hepatitis C management.
- Infants with undetectable HCV RNA do not require further follow-up unless clinically warranted.

Additional considerations:

- Age 7 – 17 months: Those who have not previously been tested should receive a NAT for HCV RNA.
- Age 18 months and older: Those who have not previously been tested should receive an HCV antibody test with reflex to NAT for HCV RNA (i.e., automatic testing when antibody is positive).
- See complete **Recommendations for Hepatitis C Testing Among Perinatally Exposed Infants and Children—United States, 2023**

Collection of the Blood Specimen

All blood draws must be performed at the eligible site. VDH funding does not support additional costs for blood draws or administrative expenses; therefore, if clients are referred to LabCorp, the cost of the blood draw must be paid by the eligible site.

Blood specimen collection supplies and requirements for HCV conventional blood draw testing:

- Container: Gel-barrier tube, plasma preparation tube (PPT), serum transfer tube, EDTA-plasma transfer tube
- Collection: Centrifuge sample within 24 hours of collection. If a tube other than a gel-barrier tube is used, or if the sample will be shipped frozen, transfer serum/plasma to a screw-cap

polypropylene transport tube. Ship refrigerated (preferred) or frozen.

- Volume: 1.5mL of serum is the required minimum to run the test; 3mL is preferred
- Specimen storage instructions: Refrigerated (preferred)
- Stability Requirements: 24 hours room temperature; six days refrigerated and up to 14 days frozen

For additional information refer to LabCorp page for test order 144050, **Hepatitis C Virus Antibody with Reflex to Quantitative Real-time PCR**.

Completion of the LabCorp OEpi Requisition Form

Eligible sites should use the OEpi LabCorp requisition form to request an HCV Antibody with Reflex to Quantitative Real-time PCR (LabCorp test order code 144050) for patients who meet the defined criteria and are uninsured (e.g., positive rapid HCV antibody test from an eligible testing site). The "reflex to NAA" indicates that if the HCV Ab is positive, LabCorp will automatically test for HCV RNA via nucleic acid amplification (NAA). HCV RNA is the confirmatory test. Other hepatitis C tests are not authorized on the account. If an alternative test is clinically indicated, contact the Viral Hepatitis Program Coordinator for assistance.

Interpretation of Results

Refer to **Appendix C** for a guide to interpretation of the HCV test results.

Follow-up and Reporting Procedures

- If the results necessitate a referral to care; provide the client with a local referral within the client's geographic area for follow-up care, and a copy of their test results.
- For information about case classification, refer to the most recent CDC Hepatitis C case definitions:
    - **Hepatitis C, Acute Case Definition**
    - **Hepatitis C, Chronic Case Definition**
- Refer to 1**2 VAC 5-90 sections 80 and 90** for reporting regulations.

Appendix A: HBV Results Interpretation

Interpretation of HBV Serologic Results		
Interpretation (recommended action)	**Test Name**	**Result**
Acute infection (**link to hepatitis B care**)	HBsAg anti-HBc IgM anti-HBc anti-HBs	+ + + -
Chronic Infection (**link to hepatitis B care**)	HBsAg anti-HBc IgM anti-HBc anti-HBs	+ + - -
Resolved Infection (**counsel about hepatitis infection reactivation risk**)	HBsAg anti-HBc anti-HBs	- + +
Immune from receipt of prior vaccination (**if documented complete series, if not documented complete vaccine series per ACIP recommendations**)	HBsAg anti-HBc anti-HBs	- + +[2]
Five possible interpretations: • Resolved infection, anti-HBs levels have waned (**counsel about HBV reinfection risk**) • Occult Infection (**link to hepatitis B care**) • Transfer of anti-HBc to an infant born to an HBsAg-positive gestational parent (**no action**) • A false positive, thus patient is susceptible (**offer HBV vaccine per ACIP recommendation**) • A mutant HBsAg strain that is not detectable by laboratory assay (**link to hepatitis B care**)	HBsAg anti-HBc anti-HBs	- + -
Susceptible, never infected (**offer hepatitis B vaccine per ACIP recommendations if no documentation of vaccine series completion**)	HBsAg anti-HBc anti-HBs	- - -[3]

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

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

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

Appendix B: HBV Testing Process Flow

Hepatitis B Testing Process Flow

Step 1: Determine if Client is eligible for OEpi paid testing
(client meets ≥ 1 criteria and uninsured/non-chargeable. If Client does not meet both requirements for eligibility, the Client can self-pay or charge to insurance)

↓

Step 2: Collect the blood specimen

↓

Step 3: Complete the OEpi Requisition form to order HBV antibody combo test with reflex

HBcAb+HBsAb+HBsAg reflex to IgM
(LabCorp code 144473)

↓

Step 4: Follow up and reporting procedures

- Send specimen to LabCorp via courier
- Follow up with client, provide test results, and refer to care if needed
- Follow regulations for disease reporting

Testing Recommendations

Universal Hepatitis B screening

- People aged ≥18 years at least once in a lifetime using a triple panel test
- All pregnant persons during each pregnancy, preferably in the first trimester, regardless of vaccination status or history of testing

Testing of persons with recognized risks, conditions, or exposures

- Infants born to HBsAg-positive pregnant persons
- People from geographic regions with a HBsAg prevalence of ≥2%
- U.S. born person not vaccinated as infants, whose parent(s) were born in geographic regions with HBsAg prevalence ≥8%
- Persons who inject drugs or have a history of injecting drugs
- Persons incarcerated or formerly incarcerated in a jail, prison, or other detention setting
- Persons with HIV infection
- Persons with HCV infection or a past HCV infection
- Men who have sex with men (MSM)
- Persons with STIs or past STIs or multiple sex partners
- Persons who are current or former household contacts and/or sexual partners of HBV infected people
- Needle-sharing or sexual contacts of persons with known HBV infection
- Persons with selected medical conditions who require immunosuppressive therapy
- Persons with liver disease of unknown etiology (elevated ALT/AST)
- Persons who engage in transactional sex work for money or drugs
- Persons who have never been infected with HBV and either did not complete a HBV vaccine series per the Advisory Committee on Immunization Practices (ACIP) recommendations or who are known to be vaccine nonresponders
- Persons who are the source or recipient of blood or body fluid exposures (e.g. needle stick injury)

Key for ordered combo test

HBsAg--Hepatitis B surface antigen--can be detected during both acute and chronic infection. The presence indicates that the person is infectious.
Anti-HBs--Hepatitis B surface antibody. Presence indicates recovery and immunity from HBV infection. Also present in those who have been vaccinated.
Anti-HBc--Hepatitis B core antibody. Appears at the onset of symptoms in acute hepatitis B and persists for life. Presence indicates previous or ongoing infection with HBV.
IgM anti-HBc--Immunoglobulin M antibody to hepatitis B core antigen. Positivity indicates recent infection with HBV (<6 mos). Its presence indicates acute infection.

Appendix C: HCV Results Interpretation

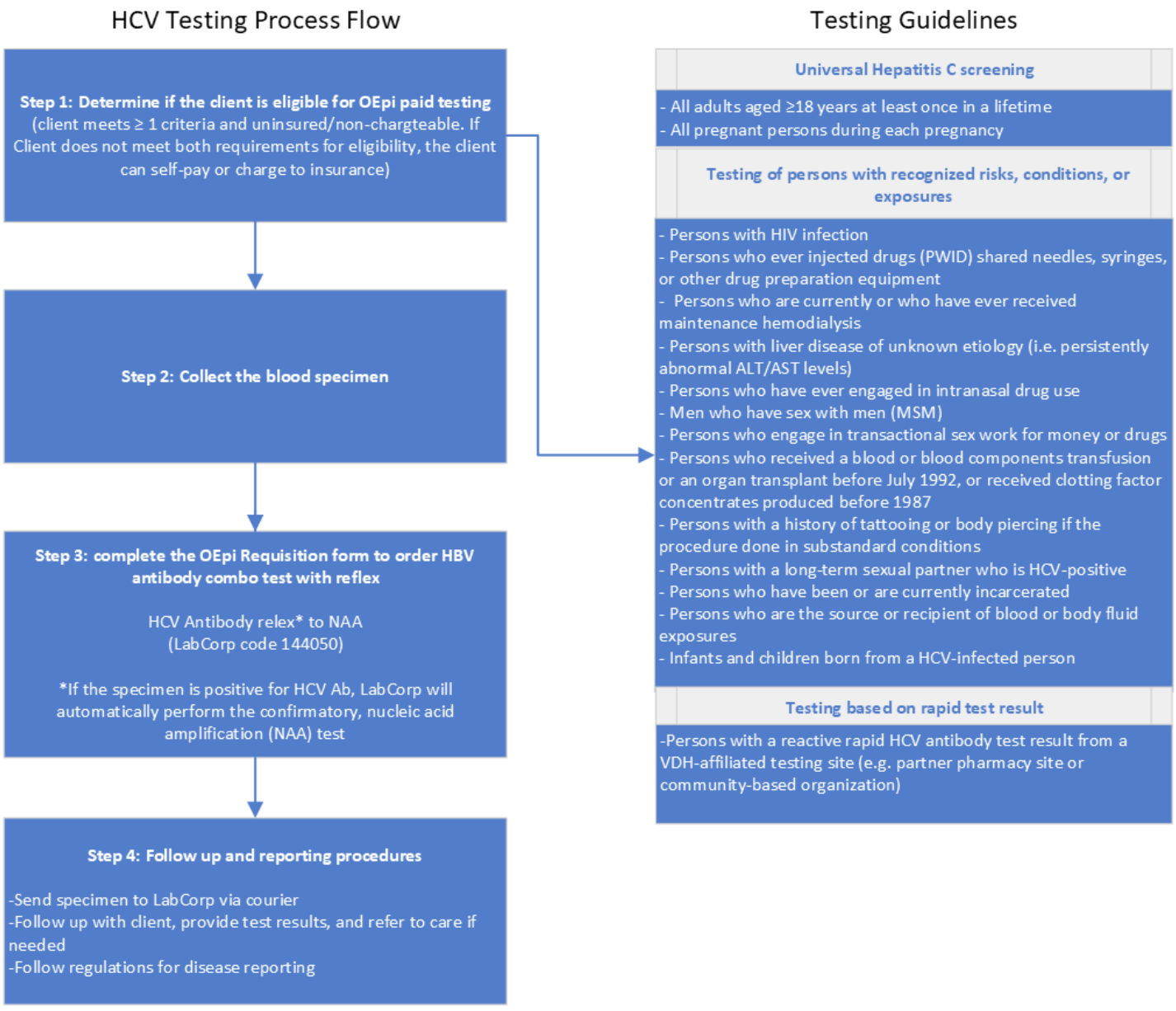
Interpretation of HCV Serologic Results		
Interpretation (recommended action)	**Test Name**	**Result**
No HCV infection detected (**no further action required**)	anti-HCV HCV RNA	- -
Current HCV infection (**provide person tested with appropriate counseling and link person tested to care and treatment**[4])	anti-HCV[5] HCV RNA	+ +
Prior HCV infection (**no further action required in most cases. In certain situations,**[6] **follow up with HCV RNA testing and appropriate counseling.**)	anti-HCV HCV RNA	+ -

[4] 10-11 weeks after exposure 40% of infected persons will be positive (+); at 15 weeks post-exposure ~80% will be anti-HCV positive (+); and at 6 months post-exposure almost all will be anti-HCV positive (+). After infection, anti-HCV generally remains positive for life

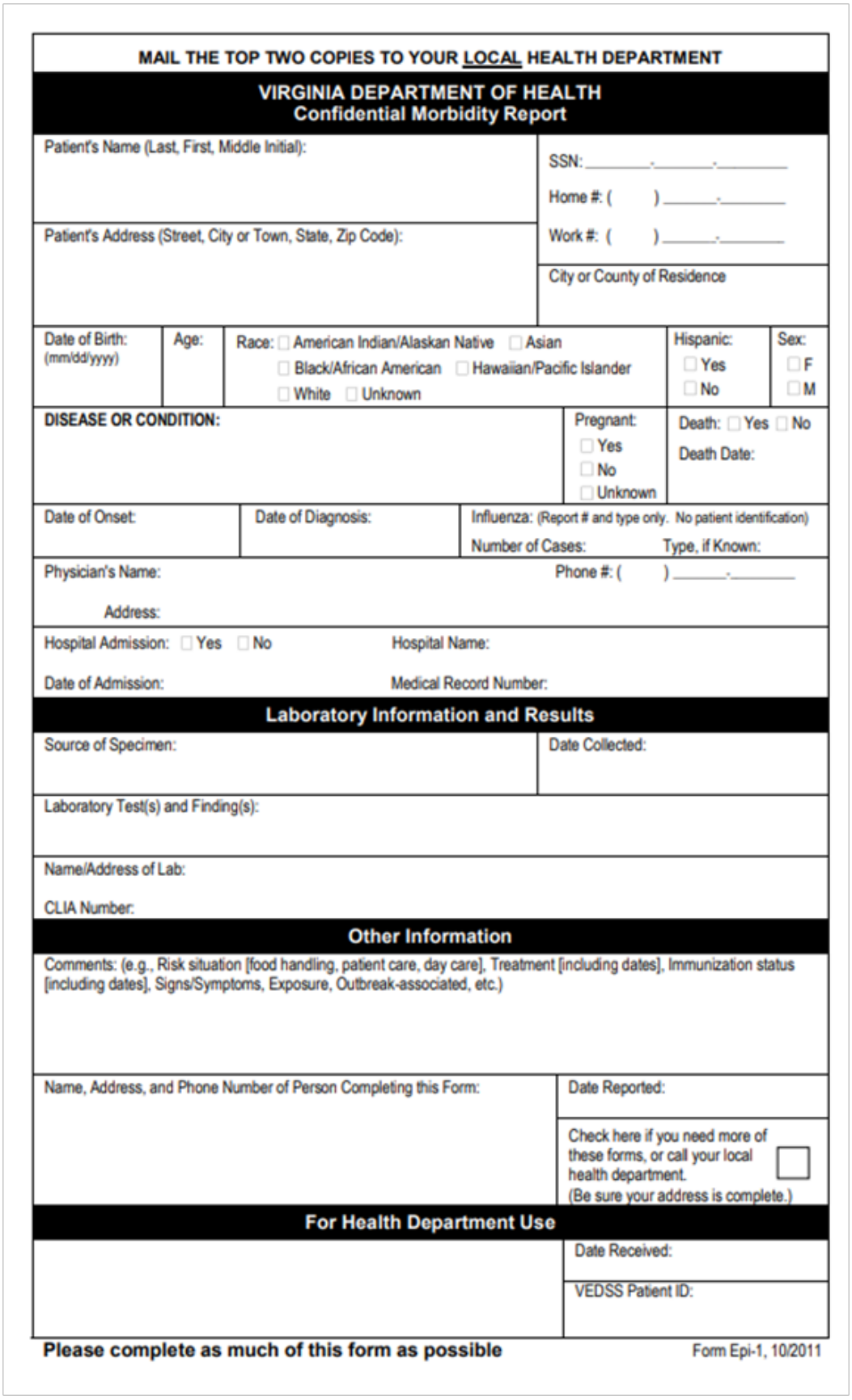
[5] It is recommended before initiating antiviral therapy to retest for HCV RNA in a subsequent blood sample to confirm HCV RNA positivity.

[6] If the person tested is suspected of having HCV exposure within the past 6 months, or has clinical evidence of HCV disease, or if there is concern regarding the handling or storage of the test specimen. If distinction between true positivity and biologic false positivity for HCV antibody is desired, and if sample is repeatedly reactive in the initial test, test with another HCV antibody assay.

Appendix D: HCV Testing Process Flow



Appendix E: Confidential Morbidity Report



MAIL THE TOP TWO COPIES TO YOUR LOCAL HEALTH DEPARTMENT

VIRGINIA DEPARTMENT OF HEALTH
Confidential Morbidity Report

Patient's Name (Last, First, Middle Initial):

SSN: _____

Home #: ( ) _____

Work #: ( ) _____

Patient's Address (Street, City or Town, State, Zip Code):

City or County of Residence

Date of Birth: (mm/dd/yyyy) | Age: | Race: ☐ American Indian/Alaskan Native ☐ Asian ☐ Black/African American ☐ Hawaiian/Pacific Islander ☐ White ☐ Unknown | Hispanic: ☐ Yes ☐ No | Sex: ☐ F ☐ M

DISEASE OR CONDITION:

Pregnant: ☐ Yes ☐ No ☐ Unknown

Death: ☐ Yes ☐ No

Death Date:

Date of Onset: | Date of Diagnosis: | Influenza: (Report # and type only. No patient identification) Number of Cases: Type, if Known:

Physician's Name: Phone #: ( ) _____

Address:

Hospital Admission: ☐ Yes ☐ No Hospital Name:

Date of Admission: Medical Record Number:

Laboratory Information and Results

Source of Specimen: | Date Collected:

Laboratory Test(s) and Finding(s):

Name/Address of Lab:

CLIA Number:

Other Information

Comments: (e.g., Risk situation [food handling, patient care, day care], Treatment [including dates], Immunization status [including dates], Signs/Symptoms, Exposure, Outbreak-associated, etc.)

Name, Address, and Phone Number of Person Completing this Form:

Date Reported:

Check here if you need more of these forms, or call your local health department. (Be sure your address is complete.) ☐

For Health Department Use

Date Received:

VEDSS Patient ID:

Please complete as much of this form as possible

Form Epi-1, 10/2011

Access the report online at: **https://redcap.vdh.virginia.gov/redcap/surveys/?s=NYKYR7W47M**

Appendix F: WebVision and LabCorp Procedure Codes

	WebVision Procedure Code	LabCorp Test Code	Description
Hepatitis B	L144473	144473	HBV Screening and Diagnosis
Hepatitis C	L144050	144050	HCV Antibody with Reflex to Quantitative Real-time PCR

Appendix G: Quick Reference Guide to Determining Eligibility for Hepatitis Testing

Conventional Hepatitis B and Hepatitis C Testing in Local Health Departments

Clients who could benefit from an HBV and/or HCV test:	HBV	HCV
People from geographic regions with an HBsAg prevalence of ≥ 2%	X	
U.S. born persons not vaccinated as infants, whose parent(s) were born in geographic regions with HBsAg prevalence of ≥ 8%	X	
Persons who have ever had household contacts and/or sexual partners who are HBV-positive	X	
Persons who are the source of blood or body fluid exposures that might warrant post-exposure prophylaxis (PEP) (e.g., needle stick injury)	X	
Persons who have never been infected with HBV and either did not complete an HBV vaccine series per ACIP recommendations or are known vaccine non-responders	X	
Needle-sharing or sexual contacts of persons with known HBV infection	X	
Persons with past or current STIs or who report multiple sex partners	X	
Persons who have current or past HCV infection	X	
Adults aged ≥ 18 years at least once in a lifetime	X	X
All pregnant persons early in each pregnancy regardless of vaccination and testing history	X	X
Anyone who requests a test, regardless of risk	X	X
Persons who have HIV infection	X	X
Persons who inject drugs (PWID) or have ever injected drugs, shared needles, syringes, or drug preparation equipment	X	X
Men who have sex with men (MSM)	X	X
Persons who have been or are currently incarcerated	X	X
Persons who engage in transactional sex for money or drugs	X	X
Persons born to HBV or HCV infected person (testing respective of birthing parent's infection)	X	X
Persons with selected medical conditions who require immunosuppressive therapy or have ever been on hemodialysis	X	X
Persons with liver disease of unknown etiology (elevated ALT/AST)	X	X

Clients who could benefit from an HBV and/or HCV test:	HBV	HCV
Persons engaging in intranasal or other non-injection drug use		X
Healthcare, emergency medical, and public safety workers after needle sticks, sharps, or mucosal exposures to HCV-positive blood		X
Persons who received a transfusion or an organ transplant before July 1992, or clotting factor concentrates produced before 1987		X
Persons with a history of tattooing or body piercing if the procedure was done where infection control practices are substandard		X
Persons who have ever had household contacts and/or sexual partners who are HCV-positive		X
Persons with a positive rapid HCV antibody test from a VDH-affiliated site (e.g., community-based organization, partner organization)		X

Appendix H: Global HBsAg Prevalence

HBsAg Prevalence ≥ 2%

Region	Countries/populations
Africa	All
Asia	All
Australia & South Pacific	All except Australia and New Zealand
Middle East	All except Cyprus and Israel
Eastern Europe	All except Hungary
Western Europe	Malta, Spain, and indigenous populations in Greenland
North America	Alaska natives and indigenous populations in northern Canada
Central America	Guatemala and Honduras
South America	Ecuador; Guyana; Suriname; Venezuela; and Amazonian areas of Bolivia, Brazil, Colombia, and Peru
Caribbean	Antigua and Barbuda, Dominica, Grenada, Haiti, Jamaica, St. Kitts and Nevis, St. Lucia, and Turks and Caicos Islands

HBsAg Prevalence ≥ 8%

Region	Countries/populations
Africa	Angola, Benin, Burkina Faso, Burundi, Cameroon, Central African Republic, Congo, Cote d'Ivoire, Equatorial Guinea, Gabon, Gambia, Ghana, Guinea, Liberia, Malawi, Mali, Mauritania, Mozambique, Namibia, Niger, Nigeria, Senegal, Sierra Leone, Somalia, South Sudan, Sudan, Swaziland, Togo, Uganda, Zimbabwe
Asia	Laos, Mongolia, Vietnam
Australia & South Pacific	Kiribati, Nauru, Niue, Papua New Guinea, Solomon Islands, Tonga, Vanuatu
Middle East	Djibouti, Yemen
Eastern Europe	Kyrgyzstan
Western Europe	None
North America	None
Central America	None
South America	None
Caribbean	Haiti

Appendix H: References

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