Screening, Diagnosis, and Prevention

This is a PDF version of the following document:
Module 8: HCV Test and Cure
Lesson 2: Screening, Diagnosis, and Prevention

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HCV Screening Recommendations in United States

Who to Screen and Test for HCV

In recent years, the CDC, the U.S. Preventive Services Task Force (USPSTF) and the American Association for the Study of Liver Disease/Infectious Diseases Society of America (AASLD-IDSA) have recommended one-time universal HCV screening for all adults in the United States.[1,2,3,4] The major rationale for routine universal screening is to enhance the ability to identify persons with chronic HCV who can then receive safe and highly effective treatment with direct-acting antiviral agents. Although there are some subtle differences in the recommendations from the CDC, the USPSTF, and AASLD-IDSA, the overriding message to health care professionals is the same: test all adults at least once for HCV and then treat every person identified with chronic HCV. This is often referred to as the "test and treat" strategy.

CDC HCV Screening Recommendations

The following summarizes recommendations issued by the CDC in 2020 for universal HCV screening and one-time testing.[2] Note the CDC does not recommend routine HCV screening in settings that have an HCV prevalence less than 0.1%, but this scenario is infrequent given the overall HCV prevalence of approximately 1% in the United States adult population (Figure 1).[2]

- **Universal HCV screening**:
  - HCV screening at least once in a lifetime for all adults 18 years of age and older
  - Hepatitis C screening for all pregnant women during each pregnancy
- **One-time HCV testing regardless of age or setting prevalence among persons with recognized risk factors or exposures**:
  - Persons with HIV
  - Persons who ever injected drugs and shared needles, syringes, or other drug preparation equipment, including those who injected once or a few times many years ago
  - Persons with selected medical conditions, including persons who ever received maintenance hemodialysis and persons with persistently abnormal alanine aminotransferase (ALT) levels
  - Prior recipients of transfusions or organ transplants, including persons who received clotting factor concentrates produced before 1987, persons who received a transfusion of blood or blood components before July 1992, persons who received an organ transplant before July 1992, and persons who were notified that they received blood from a donor who later tested positive for HCV infection
  - Health care, emergency medical, and public safety personnel after needle sticks, sharps, or mucosal exposures to HCV-positive blood

    - Children born to mothers with HCV infection
- **Routine periodic HCV testing for persons with ongoing risk factors, while risk factors persist**:
    - Persons who currently inject drugs and share needles, syringes, or other drug preparation equipment
    - Persons with selected medical conditions, including persons who are receiving maintenance hemodialysis
- **Testing upon request**:
    - Any person who requests hepatitis C testing should receive it, regardless of disclosure of risk, because many persons might be reluctant to disclose risks.

[Q] HCV Screening of Pregnant Women

HCV Diagnostic Testing

HCV Testing Sequence Options

In 2013, the CDC issued recommendations for an HCV screening that uses an HCV antibody test (either a rapid or laboratory assay) as the initial test, with reflexive HCV RNA testing for all positive antibody tests.[5] A newer and alternative strategy is to use point-of-care (POC) HCV RNA testing; the point-of-care HCV RNA testing, which recently became available in the United States, is performed using the Cepheid Xpert HCV testing platform, with results available in approximately 1 hour.[6]

HCV Antibody Screening with Reflex to HCV RNA

Using the 2013 CDC recommended approach, all persons with a positive HCV antibody screening tests should have follow-up HCV RNA testing to determine whether active HCV infection is present (Figure 2).[5] In clinical settings, the follow-up HCV RNA testing is ideally done reflexively, meaning that HCV antibody-positive samples are reserved and processed automatically for RNA testing; this “reflex to RNA” approach improves efficiency and expedites the diagnosis of persons with chronic HCV.[5] If a person has a negative screening HCV antibody test, no further testing is needed, unless there has been an exposure to HCV in the prior 6 months or the person is severely immunocompromised and cannot generate adequate antibody response; in either of these situations, HCV RNA testing should be performed.[5] All persons identified with a positive HCV RNA test should be evaluated for HCV treatment. Note that individuals with prior HCV infection that has cleared (spontaneously or by treatment) will have a positive HCV antibody for life and thus further screening, if warranted, should be done with HCV RNA testing.[Q] HCV Testing Algorithm

HCV Test Interpretation

Since some persons with HCV infection can clear this virus either spontaneously or through treatment, the interpretation of HCV test results is particularly important to sort out who has prior HCV versus active HCV infection.

- **Negative Screening HCV Antibody Test**: Persons with a negative screening antibody test are considered not infected with HCV and do not need further diagnostic evaluation unless they have known risk factors for a false-negative test, including suspected acute HCV infection, or an immunocompromising condition that may impair their ability to mount an antibody response.
- **Positive HCV Antibody and Positive HCV RNA**: Persons with a positive HCV antibody test and a positive HCV RNA have chronic HCV infection.
- **Positive HCV Antibody and Negative HCV RNA**: Persons with a positive HCV antibody test but a negative HCV RNA have been exposed to HCV in the past but are not currently infected. This can occur when individuals clear HCV on their own or following successful treatment for HCV.
- **Negative HCV Antibody and Positive HCV RNA**: Although HCV RNA testing is not routinely recommended in the setting of a negative screening antibody test, clinicians may choose to send an HCV RNA test when there is concern for acute HCV infection or a false-negative HCV antibody. A negative HCV antibody but positive HCV RNA indicates either acute HCV infection or chronic infection in an immunocompromised person unable to mount an adequate antibody response.

[Activity] B. Interpretation of HCV Diagnostic Laboratory Test Results

Point-of-Care HCV RNA Testing

On June 27, 2024, the U.S. Food and Drug Administration approved the first point-of-care HCV RNA test (Xpert HCV test) to be used as a point-of-care qualitative detection of HCV RNA.[6] This test can be used in clinical settings that are operating under a Clinical Laboratory Improvement Amendments (CLIA) Certificate of Waiver.[6] The test requires a blood sample obtained from a fingerstick. The blood sample is run on the

GeneXpert Xpress System, which performs an automated in vitro reverse transcription polymerase chain reaction (RT-PCR) test. The HCV qualitative test result is available in approximately 1 hour.[6] The CDC has published a document related to the new HCV point-of-care test: Considerations for the Implementation of Point-of-Care Testing for the Diagnosis of Hepatitis C Virus Infection.[7] [Activity] C. Strategies for Implementing Hepatitis C Virus Point-of-Care Testing

Counseling for Prevention of HCV Transmission

For persons newly diagnosed with chronic HCV infection, it is important to provide information on how they can prevent transmission to others. Similarly, persons who spontaneously clear or are cured of HCV must be counseled that reinfection is possible and prevention strategies should be used on a long-term basis.[8,9,10]

1. **Counseling for the Prevention of HCV Transmission via Injection Drug Use**
   The risk for HCV transmission among people who inject drugs (PWID) is clearly associated with sharing of syringes and other injection equipment (e.g., cookers, cottons, water) (Figure 3).[11,12] Therefore, PWID should receive counseling to avoid sharing needles, syringes, and other drug preparation equipment, including the prepared drug itself.[13] In addition, PWID should receive counseling regarding available syringe service programs and medications for opioid use disorder, such as buprenorphine-naloxone, methadone, and naltrexone.[14,15,16,17,18]
2. **Counseling for the Prevention of Sexual Transmission of HCV**
   Transmission of HCV through heterosexual contact is very rare, although having multiple sex partners has been associated with an increased risk of HCV acquisition.[19] The CDC recommends that persons with HCV who have one long-term steady sex partner do not need to alter their sex practices.[13] Sexual transmission of HCV is more common among men who have sex with men (MSM), particularly MSM with HIV, MSM with multiple sex partners, and MSM who engage in condomless receptive anal intercourse.[20,21,22,23,24] The use of latex condoms and the avoidance of sexual practices that result in bleeding can reduce the risk of sexual HCV transmission among serodifferent couples.
3. **Counseling for the Prevention of Household HCV Transmission**
   The risk of isolated intra-household, nonsexual and non-injection drug use transmission of HCV is very low. However, persons with HCV should be counseled to cover cuts and sores and to avoid sharing personal items (e.g., razors, toothbrushes, nail clippers) that may be contaminated with blood.[13]
4. **Counseling for the Prevention of Perinatal HCV Transmission**
   Perinatal transmission of HCV occurs in approximately 5-6% of pregnant women with HCV viremia (assuming they do not get treatment during the pregnancy).[25,26,27,28] The most important risk factors associated with increased perinatal transmission are HIV coinfection in the pregnant woman and detectable HCV viremia during pregnancy.[28,29,30] Perinatal transmission of HCV has not been associated with mode of delivery (e.g., vaginal vs. cesarean), nor with breastfeeding in the absence of damage, cracked or bleeding nipples.[27,29] [Q] Counseling Household Contacts

Summary Points

- The CDC, the USPSTF, and AASLD-IDSA recommend one-time universal HCV testing for all adults 18 years and older and all pregnant women during each pregnancy.
- The major rationale for routine universal screening is to enhance the ability to identify persons with chronic HCV who can then receive safe and highly effective treatment with direct-acting antiviral agents.
- Periodic repeat HCV testing should occur among persons with recognized ongoing risk factors or exposures.
- The CDC recommends initial HCV screening using an HCV antibody test followed by HCV RNA testing to confirm active HCV infection if the antibody test is positive.
- Results of HCV antibody and HCV RNA testing will indicate if a person was never infected, if they have acute infection, chronic infection, or had a prior resolved HCV infection.
- A point-of-care fingerstick quantitative HCV RNA test (Xpert HCV VL) is now available, and it provides an HCV RNA level result in approximately 1 hour.
- Prevention counseling for persons newly infected with HCV is key to stopping the transmission of HCV via injection drug use, sexual activity, household sharing of personal items, and in pregnancy.

Citations

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Figures

Figure 1 HCV Testing Recommendations

Source: Schillie S, Wester C, Osborne M, Wesolowski L, Ryerson AB. CDC Recommendations for Hepatitis C Screening Among Adults - United States, 2020. MMWR Recomm Rep. 2020;69:1-17.

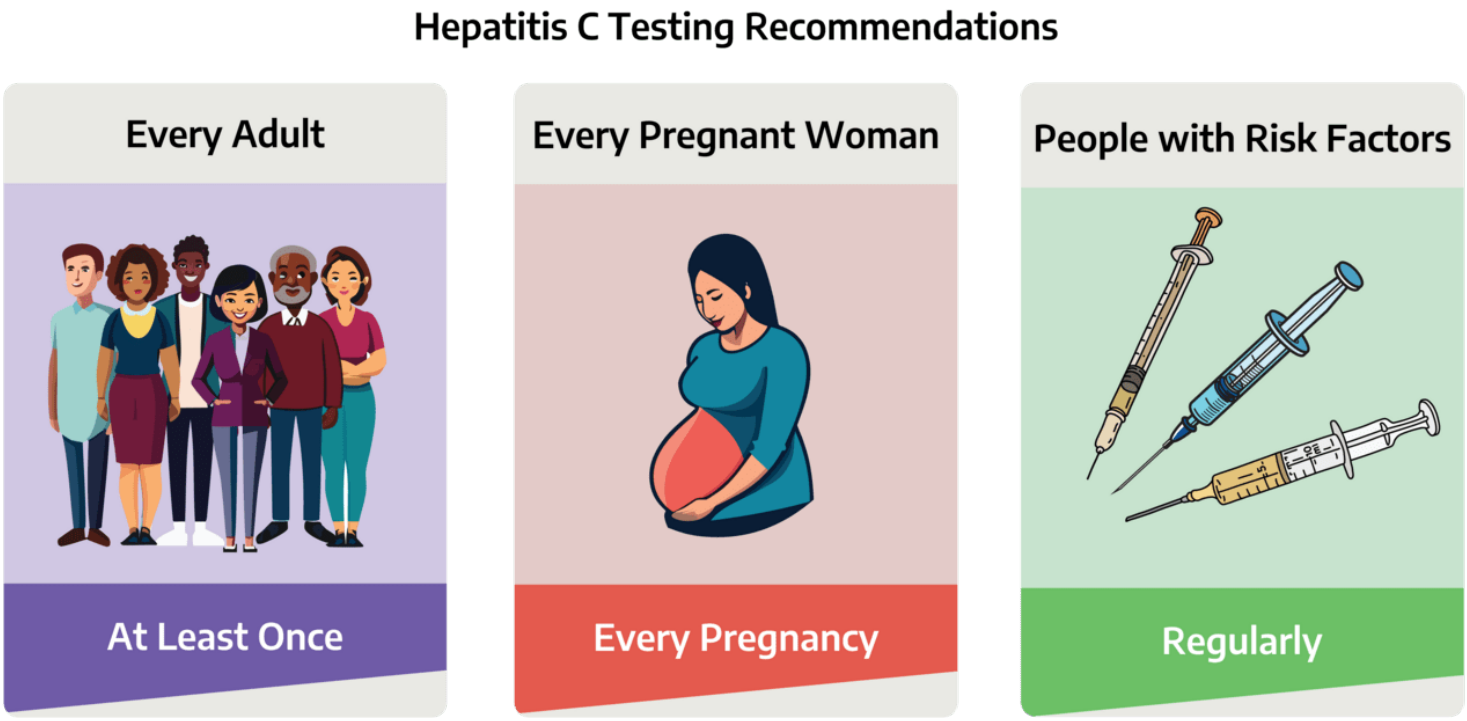

Figure 2 Recommended Testing Sequence for Identifying Current HCV Infection

*For persons who might have been exposed to HCV within the past 6 months, testing for HCV RNA or follow-up testing for HCV antibody is recommended. For persons who are immunocompromised, testing for HCV RNA can be considered.
¶To differentiate past, resolved HCV infection from biologic false positivity for HCV antibody, testing with another HCV antibody assay can be considered. Repeat HCV RNA testing if the person tested is suspected to have had 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.

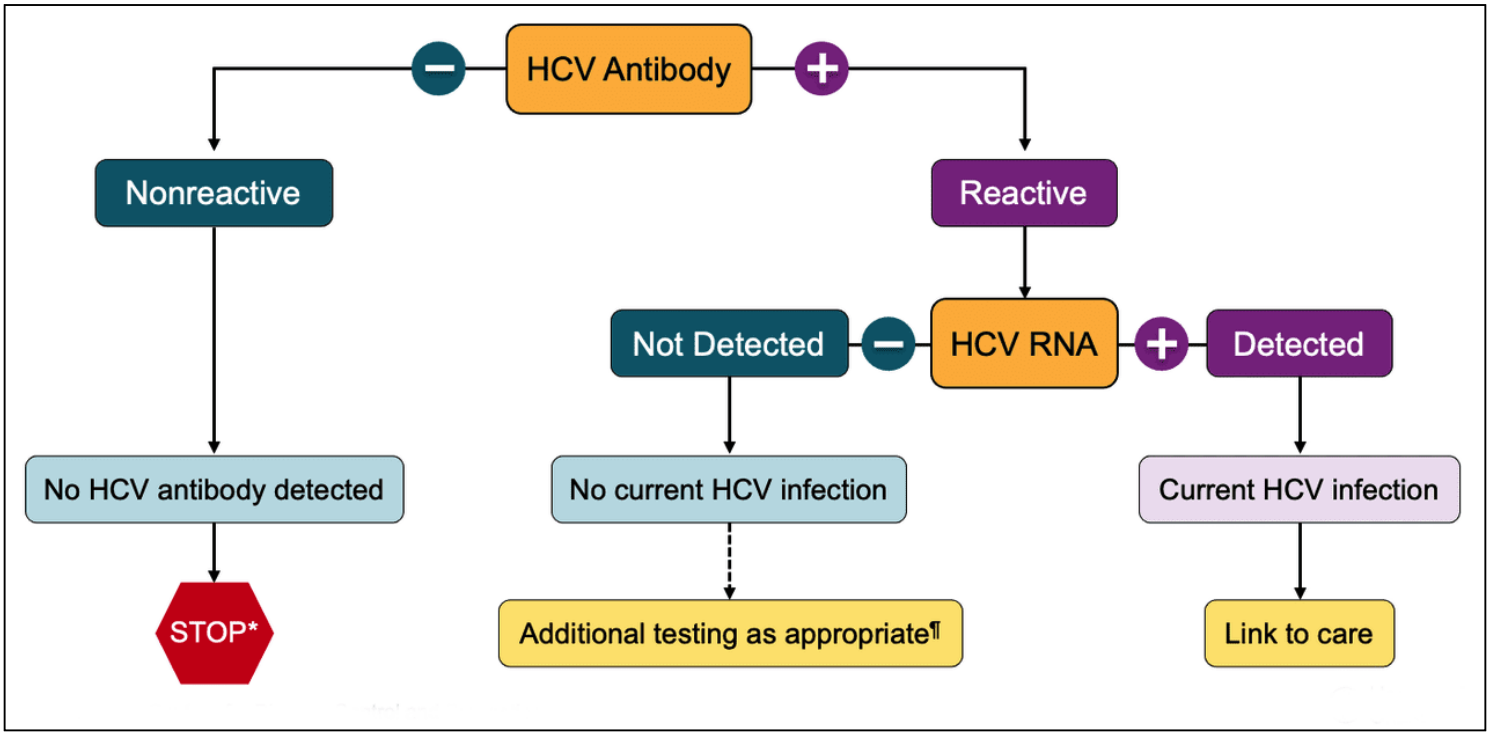

Figure 3 Injection Equipment

Image credit: Hepatitis Education Project