Current Hepatitis C Testing Recommendations

Recently, several organizations have issued hepatitis C testing recommendations. In general, major guidelines now recommend routine one-time universal HCV testing for adults 18 years of age and older, routine screening of pregnant individuals, screening younger persons at risk of acquiring HCV, and repeat screening for those with ongoing risk for HCV acquisition.

CDC Testing Recommendations for HCV Screening

On April 10, 2020, the Centers for Disease Control and Prevention (CDC) issued new recommendations for hepatitis C screening among adults in the United States (Table 1).[1] This new guidance augments prior CDC guidance on HCV screening with two new major recommendations: (1) all adults aged 18 years and older should have HCV screening at least once in their lifetime, except in settings where the prevalence of HCV infection is less than 0.1%, and (2) HCV screening should be performed for all pregnant women during each pregnancy, except in settings where the prevalence of HCV infection is less than 0.1%.[1] The CDC continues to recommend screening persons for HCV, regardless of age if risk factors for acquiring HCV are present, with repeat periodic screening in persons who have ongoing risk for acquiring HCV. These new CDC HCV screening recommendations expand prior guidance that recommended routine screening for all persons born between 1945-1965.[1,2,3]

2020 USPSTF HCV Screening Recommendations

In March 2020, the U.S. Preventive Services Task Force (USPSTF) issued updated recommendations regarding screening for HCV. The USPSTF now recommends routine screening for all adults in the United States 18-79 years of age, including pregnant women (USPSTF Screening for Hepatitis C Infection).[4,5,6] The 2020 USPSTF recommendation for HCV screening was categorized as a grade B recommendation, which means that the USPSTF concludes with moderate certainty that screening for HCV in adults 18-79 years of age has substantial net benefit and that health care providers should offer this service (Table 2).[4,5,6] The USPSTF notes that most adults will require HCV screening only once, but those with ongoing risk of acquiring HCV will need periodic screening. For persons younger than 18 or older than 79 years of age, screening for HCV can be considered if the individual is considered at high risk for having acquired HCV.[4,5,6] The 2020 USPSTF recommendations for HCV screening is clearly a major change from the prior 2013 USPSTF recommendations to screen adults born during 1945-1965 and those with known risk.[7,8]

AASLD/IDSA HCV Testing Guidance

The American Association for the Study of Liver Diseases (AASLD) and Infectious Diseases Society of America
(IDSA) guidance for hepatitis C addresses HCV testing in the section **HCV Testing and Linkage to Care**.[9] The AASLD/IDSA recommends (1) one-time, routine, opt out HCV testing for all individuals aged 18 years and older, (2) one-time testing for persons younger than age 18 who have increased risk for acquiring HCV, (3) periodic testing for persons who have risk activity for acquiring HCV, and (4) annual testing for men with HIV who have condomless sex with other men.[9] The AASLD/IDSA recommendations for testing incorporate birth-cohort screening as well as testing based on risk behaviors, risk exposures, and medical conditions associated with acquisition of HCV.[9]
Rationale for Expanded HCV Screening of All Adults

Since the release of the 2013 CDC birth-cohort (1945-1965) HCV screening recommendations, several key factors have emerged that influenced recent recommendations to expand HCV screening in the United States to include all adults.[10,11,12]

- **Changing HCV Epidemiology in the United States**: In recent years, there has been a major surge in new cases of HCV in the United States (Figure 2).[13] The increase in cases has disproportionately involved younger adults (Figure 3), primarily young adults with opioid dependence and associated injection drug use.[13,14,15] Use of the older screening recommendations (routine testing of persons born in the years 1945-1965) does not effectively screen for young individuals with HCV, unless they disclose their injection drug use.

- **High Cure Rate with DAA Therapy**: Newer direct-acting antiviral (DAA) therapy used to treat HCV has proven extraordinarily effective, with 8- or 12-week oral regimens showing an excellent safety profile and cure rates that exceed 98%.[16]

- **Impact of Treatment on HCV Natural History**: Extensive data has accumulated showing that achievement of sustained virologic response (SVR) with HCV treatment, which occurs in more than 98% of patients who receive recommended DAA regimens, is associated with major decreases in hepatocellular carcinoma, liver-related mortality, and all-cause mortality.[5]

- **Lower Cost of DAA Regimens**: Recent competitive market forces have significantly driven down the cost of HCV treatment. During the time period around 2015, the typical cost for an HCV treatment course with DAA, such as ledipasvir-sofosbuvir, was approximately $84,000. Several years later, the pangenotypic, highly effective glecaprevir-pibrentasvir regimen became available at a substantially lower cost. Currently, an 8-week treatment course of glecaprevir-pibrentasvir is a highly effective treatment option for many individuals with chronic HCV at a cost of less than $27,000—a total medication cost less than the annual cost of most HIV antiretroviral regimens.[12]

- **Potential Public Health Benefit**: The concept of HCV treatment as prevention is based on the fundamental principle that persons with HCV who are treated and cured will not transmit HCV to others. Although clinical studies have not yet established the public health benefit of hepatitis C treatment as prevention, multiple mathematical modeling studies have concluded that treatment as prevention would have a major role in controlling (and eventually eliminating) HCV.[17,18,19] In recent years, several countries have initiated formal national HCV elimination plans using treatment as prevention as a key component of these plans.[20]
Birth-Cohort (1945-1965) Hepatitis C Testing

2012 Birth-Cohort HCV Testing Recommendations

In 2012, the CDC issued a new recommendation that all adults born from 1945 through 1965 should undergo one-time testing without prior ascertainment of HCV risk status.[2] This recommendation is intended to augment risk-based screening; therefore, HCV screening should continue for persons who have identified risk factors for HCV infection.[2] The recommendations based on birth cohort also state that anyone identified with HCV infection should undergo brief alcohol screening, including intervention as clinically indicated.[2] Persons diagnosed with HCV infection should also be referred to a site where they can receive appropriate clinical care and treatment services for their hepatitis C infection and related conditions.[2]

Selection of 1945-1965 Birth-Cohort Testing for Hepatitis C

Among all persons living with chronic hepatitis C infection in the United States, approximately 75% were born during 1945-1965.[21,22] This 1945-1965 birth cohort is often referred to as the “baby boomers” and the prevalence of anti-HCV in this birth cohort is approximately 3.25%, which is approximately 5-fold greater than among adults born in other years (Figure 4).[2,23,24] Most of the individuals in the 1945-1965 birth cohort acquired HCV infection in the 1970s and 1980s.[2] In 2007, persons aged 45-64 years (which corresponded to persons born from 1943-1962) accounted for 73% of all hepatitis C-related deaths. The CDC selected the 1945-1965 birth cohort as the target population based on data from studies related to HCV prevalence, HCV disease burden, and cost-effectiveness analysis of routine screening.[25]

Cost Effectiveness of 1945-1965 Birth-Cohort Testing

Investigators used a simulated model to predict the cost effectiveness of one-time HCV antibody testing for a birth cohort of adults born from 1945 to 1965.[25] In the near future, birth-cohort screening will cost more than risk-based screening but this reverses with a longer duration. Compared with risk-based screening, birth-cohort screening would identify an estimated 808,580 additional cases of hepatitis C (86% of all undiagnosed cases in the birth cohort) at a screening cost of $2,874 per case identified. In addition, this model for birth-cohort screening followed by treatment with telaprevir plus peginterferon plus ribavirin in this model, an estimated 121,000 fewer deaths would occur at a cost of $35,700 per quality-adjusted life year saved. When using the standards set by the National Committee on Prevention Priorities, the cost-effectiveness of hepatitis C birth-cohort screening is similar to other widely used screening practices, such as screening for hypertension or colorectal cancer.

CDC Educational Campaign

The CDC has initiated a broad educational campaign both for the public and for medical providers to focus attention on the 1945 to 1965 birth-cohort hepatitis C screening recommendations. The Know More Hepatitis campaign is a national education campaign designed to increase awareness related to the HCV epidemic and to encourage people who may have HCV infection to get tested. The Know More Hepatitis campaign has an array of educational resources, including fact sheets, posters, buttons and badges, sample e-mail announcements, and sample radio scripts.
Historical HCV Testing Based Only on Risk Factors

1998 CDC Risk-Based HCV Screening Recommendations

In 1998, the Centers for Disease Control and Prevention (CDC) issued recommendations for risk-based HCV testing as part of an overall strategy to prevent and control HCV infection and HCV-related disease. These recommendations categorize groups of persons who should undergo routine testing for HCV infection based on their risk for infection and based on a recognized exposure (Figure 5).[26]

2002 NIH Guidelines for HCV High-Risk Testing

In 2002, the National Institutes of Health (NIH) recommended testing for HCV in persons considered at high risk of acquiring HCV infection (Figure 6).[27]

Limitations of Using only Risk-Based HCV Screening

A prior study that analyzed effectiveness of risk-based found that 45 to 85% of adults with chronic HCV infection in the United States were unaware of their HCV infection status.[2,21,28] Problems with using risk-based screening were highlighted in the Chronic Hepatitis Cohort Study survey of 4,689 persons living with HCV infection who were asked about their choice of location and reason for their HCV testing.[29] The study analyzed data from 2006-2010 that revealed that 60% of persons living with HCV had their initial testing ordered at a physician’s office and 45% underwent testing because of clinical indications related to liver disease; fewer than 25% of the persons with HCV infection had identifiable risk factors for acquiring HCV that would have prompted testing using the 1998 CDC Risk-Based HCV Screening Recommendations.[29] Notably, 78% of those diagnosed with HCV were born during the time period of 1945 to 1965.[29]
Summary Points

- The CDC recommends universal HCV screening at least once in a lifetime for all adults 18 years of age and older and HCV screening for all pregnant women during each pregnancy; these recommendations do not apply to regions that have an HCV prevalence of less than 0.1%.
- The CDC recommends one-time HCV testing regardless of age or setting prevalence in persons with recognized risk for acquiring HCV.
- The CDC recommends periodic retesting for HCV in persons with ongoing risk for acquiring HCV.
- The USPSTF recommends routine screening for all adults in the United States 18-79 years of age, including pregnant women. Persons outside the 18-79 age range should have HCV testing if they have risk factors for acquiring HCV infection.
- The USPSTF recommends periodic screening for HCV in persons who have continued risk for acquiring HCV infection.
- The AASLD/IDSA recommends one-time, routine, opt out HCV testing for all individuals aged 18 years and older and one-time testing for persons younger than age 18 who have increased risk for acquiring HCV.
- The AASLD/IDSA recommends periodic testing for persons who have risk activity for acquiring HCV, including the recommendation to perform annual HCV testing for men with HIV who have condomless sex with other men.
- Multiple factors have led to the recommendation to provide universal HCV screening in the United States; these factors include increases in HCV cases among young adults, availability of highly effective treatment for HCV, decreases in the cost of HCV therapy, and potential public health transmission benefits associated with more treatment.
- Risk-based hepatitis C screening alone is not effective and not recommended.


9. AASLD-IDSA. Recommendations for testing, management, and treating hepatitis C. HCV testing and linkage to care. [AASLD-IDSA Hepatitis C Guidance]


References


- Centers for Disease Control and Prevention (CDC). Know More Hepatitis. [CDC and Know More]

- Centers for Disease Control and Prevention. CDC Recommendations for Hepatitis C Screening Among Adults [DRAFT Recommendations]. [CDC]


**Figures**

**Figure 1 (Image Series) - CDC Testing Recommendations for Chronic Hepatitis C Infection**

*Image 1A: Persons for Whom HCV Testing is Recommended*

<table>
<thead>
<tr>
<th>CDC Testing Recommendations for Chronic Hepatitis C Virus Infection</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Persons for Whom HCV Testing is Recommended</strong></td>
</tr>
<tr>
<td>Adults Born During 1945 to 1965</td>
</tr>
</tbody>
</table>

**HCV Testing Recommended for those who:**
- Currently inject drugs
- Ever injected drugs, including those who injected once or a few times many years ago
- Persons with selected medical conditions, including persons
  - who received clotting factor concentrates produced before 1987
  - who were ever on long-term hemodialysis
  - with persistently abnormal alanine aminotransferase (ALT) levels
  - who have HIV Infection
- Were prior recipients of transfusions or organ transplants, including persons who
  - were notified they received blood from a donor who later tested positive for HCV infection
  - received a transfusion of blood, blood components, or organ transplant before July 1992

**HCV Testing Based on a Recognized Exposure is Recommended for:**
- Healthcare, emergency medical, and public safety workers after needle sticks, sharps, or mucosal exposures to HCV-positive blood
- Children born to HCV-positive women

*Note: 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.*
### CDC Testing Recommendations for Chronic Hepatitis C Virus Infection

#### Persons for Whom Routine HCV Testing is of Uncertain Need

- Recipients of transplanted tissue (e.g. corneal, musculoskeletal, skin, ova, sperm)
- Intranasal cocaine and other non-injecting illegal drug users
- Persons with a history of tattooing or body piercing
- Persons with a history of multiple sex partners or sexually transmitted diseases
- Long-term steady sex partners of HCV-positive persons
### CDC Testing Recommendations for Chronic Hepatitis C Virus Infection

<table>
<thead>
<tr>
<th>Persons for Whom Routine HCV Testing is Not Recommended (unless they have risk factors for HCV infection)</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Healthcare, emergency medical, and public safety workers</td>
</tr>
<tr>
<td>• Pregnant women</td>
</tr>
<tr>
<td>• Household (nonsexual) contacts of HCV-positive persons</td>
</tr>
<tr>
<td>• General population</td>
</tr>
</tbody>
</table>
Figure 2 Estimated Number of Acute Hepatitis C, United States, 2010-2017

Figure 3: Reported Rate of Cases of Acute Hepatitis C, United States, by Age Group, 2017

Figure 4 Prevalence of HCV Antibody by Year of Birth.


Figure 5 CDC 1998 Risk-Based HCV Screening Recommendations.


### 1998 CDC Risk-Based HCV Screening Recommendations

<table>
<thead>
<tr>
<th>Persons who should be tested routinely for HCV infection based on their risk for infection</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Persons who ever injected illegal drugs, including those who injected once or a few times many years ago and do not consider themselves as drug users.</td>
</tr>
<tr>
<td>• Persons with selected medical conditions, including</td>
</tr>
<tr>
<td>- persons who received clotting factor concentrates produced before 1987;</td>
</tr>
<tr>
<td>- persons who were ever on chronic (long-term) hemodialysis; and</td>
</tr>
<tr>
<td>- persons with persistently abnormal alanine aminotransferase levels.</td>
</tr>
<tr>
<td>• Prior recipients of transfusions or organ transplants, including</td>
</tr>
<tr>
<td>- persons who were notified that they received blood from a donor who later tested positive for HCV infection;</td>
</tr>
<tr>
<td>- persons who received a transfusion of blood or blood components before July 1992; and</td>
</tr>
<tr>
<td>- persons who received an organ transplant before July 1992.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Persons who should be tested routinely for HCV infection based on a recognized exposure</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Healthcare, emergency medical, and public safety workers after needle sticks, sharps, or mucosal exposures to HCV-positive blood.</td>
</tr>
<tr>
<td>• Children born to HCV-positive women.</td>
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</tbody>
</table>
**Figure 6 NIH 2002 HCV Risk-Based Testing Recommendations.**


<table>
<thead>
<tr>
<th>2002 NIH Consensus Guidelines HCV High-Risk Testing Recommendations</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Persons who should be tested routinely for HCV infection if they are in the following high-risk groups:</strong></td>
</tr>
<tr>
<td>• People who had transfusions of blood or blood products before routine blood screening began</td>
</tr>
<tr>
<td>• People receiving dialysis</td>
</tr>
<tr>
<td>• People who may have had intimate contact with anyone infected with hepatitis C</td>
</tr>
<tr>
<td>• Healthcare workers exposed to infected people</td>
</tr>
<tr>
<td>• Current or former injection-drug users</td>
</tr>
<tr>
<td>• People with abnormal liver tests</td>
</tr>
<tr>
<td>• People who are HIV positive</td>
</tr>
</tbody>
</table>
**Table 1.**

**CDC Recommendations for Hepatitis C Screening Among Adults — United States**

<table>
<thead>
<tr>
<th>Persons Recommended for Screening</th>
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</thead>
<tbody>
<tr>
<td><strong>Universal hepatitis C screening:</strong></td>
</tr>
<tr>
<td>• Hepatitis C screening at least once in a lifetime for all adults aged ≥18 years, except in settings where the prevalence of HCV infection (HCV RNA-positivity) is &lt;0.1%</td>
</tr>
<tr>
<td>• Hepatitis C screening for all pregnant women during each pregnancy, except in settings where the prevalence of HCV infection (HCV RNA-positivity) is &lt;0.1%</td>
</tr>
<tr>
<td><strong>One-time hepatitis C testing regardless of age or setting prevalence among persons with recognized risk factors or exposures:</strong></td>
</tr>
<tr>
<td>• Persons with HIV</td>
</tr>
<tr>
<td>• 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</td>
</tr>
<tr>
<td>• Persons with selected medical conditions, including persons who ever received maintenance hemodialysis and persons with persistently abnormal ALT levels</td>
</tr>
<tr>
<td>• 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</td>
</tr>
<tr>
<td>• Health care, emergency medical, and public safety personnel after needle sticks, sharps, or mucosal exposures to HCV-positive blood</td>
</tr>
<tr>
<td>• Children born to mothers with HCV infection</td>
</tr>
<tr>
<td><strong>Routine periodic testing for persons with ongoing risk factors, while risk factors persist:</strong></td>
</tr>
<tr>
<td>• Persons who currently inject drugs and share needles, syringes, or other drug preparation equipment</td>
</tr>
<tr>
<td>• Persons with selected medical conditions, including persons who ever received maintenance hemodialysis</td>
</tr>
</tbody>
</table>

Any person who requests hepatitis C testing should receive it, regardless of disclosure of risk, because many persons might be reluctant to disclose stigmatizing risks

Source:

<table>
<thead>
<tr>
<th>Grade</th>
<th>Definition</th>
<th>Suggestions for Practice</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>A</strong></td>
<td>The USPSTF recommends the service. There is high certainty that the net benefit is substantial.</td>
<td>Offer or provide this service.</td>
</tr>
<tr>
<td><strong>B</strong></td>
<td>The USPSTF recommends the service. There is high certainty that the net benefit is moderate or there is moderate certainty that the net benefit is moderate to substantial.</td>
<td>Offer or provide this service.</td>
</tr>
<tr>
<td><strong>C</strong></td>
<td>The USPSTF recommends selectively offering or providing this service to individual patients based on professional judgment and patient preferences. There is at least moderate certainty that the net benefit is small.</td>
<td>Offer or provide this service for selected patients depending on individual circumstances.</td>
</tr>
<tr>
<td><strong>D</strong></td>
<td>The USPSTF recommends against the service. There is moderate or high certainty that the service has no net benefit or that the harms outweigh the benefits.</td>
<td>Discourage the use of this service.</td>
</tr>
<tr>
<td><strong>I</strong></td>
<td>The USPSTF concludes that the current evidence is insufficient to assess the balance of benefits and harms of the service. Evidence is lacking, of poor quality, or conflicting, and the balance of benefits and harms cannot be determined.</td>
<td>Read the clinical considerations section of USPSTF Recommendation Statement. If the service is offered, patients should understand the uncertainty about the balance of benefits and harms.</td>
</tr>
</tbody>
</table>

Source:

- U.S. Preventive Services Task Force. Final Recommendation Statement. Hepatitis C: Screening. [USPSTF](#)