Triple E for HCV: Engagement, Education, and Eradication of HCV Among Patients with Substance Use Disorders

Project ID: 5326

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Objectives:

After reading and studying this newsletter, the participant should be able to:

- Recognize the risks of exposure to HCV in injection drug users and identify epidemiologic trends of HCV infection in this population
- Describe the natural history of chronic HCV infection
- Demonstrate how proper HCV screening and diagnosis, as well as implementation of antiviral therapy, can improve long term outcomes in injection drug users

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Triple E for HCV: Engagement, Education, and Eradication of HCV Among Patients with Substance Use Disorders

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Introduction

Triple E for HCV: Engagement, Education, and Eradication of HCV Among Patients with Substance Use Disorders

Chronic infection with the hepatitis C virus (HCV) is a major cause of liver disease and is the most common chronic blood-borne infection in the U.S., affecting over 3-4 million people.¹ As the majority of infected individuals remain undiagnosed and at risk of progressive liver disease, the healthcare burden associated with HCV is projected to rise over the next decade with an increasing prevalence of cirrhosis, liver failure, and hepatocellular carcinoma (HCC).^{2,3} As more effective treatment options have become available, it is important to recognize that individuals with addictive disorders, particularly those who inject drugs, are a key population that remains at the greatest risk of acute exposure to HCV and could benefit greatly from efforts to increase awareness, promote screening and diagnosis, and improve access to antiviral therapy.

Risk of Exposure through Injection Drug Use

HCV is primarily transmitted through parenteral exposure. As the virus was not identified until 1989, and specific antibody screening for HCV in blood donors was not implemented until 1992, transfusion-related exposure was a major source of HCV transmission in addition to injection drug use (IDU). Other groups known to be at risk of exposure include hemodialysis patients, hemophiliacs, and individuals infected with human immunodeficiency virus (HIV). However, in the current era, IDU continues to be the principal risk factor for HCV infection, accounting for at least 50% of acute symptomatic infections.⁴

Although HCV and HIV share transmission risks related to parenteral exposure, efforts to reduce transmission of HIV in persons who inject drugs have not translated to an equivalent reduction in transmission of HCV. Transmission of HCV occurs through contact with contaminated blood, not only in association with needles and syringes, but also through contact with preparation equipment. In addition, HCV is more readily transmitted

and less sharing of needles is required to transmit the virus. Consequently, the prevalence of HCV infection is greater than that of HIV infection in people who inject drugs. The availability of needle-exchange programs has made an impact through a reduction in the use of contaminated needles; however, HCV may still be transmitted through exposure to contaminated filters, cookers, water, and surfaces. HCV can survive on inanimate objects outside of the body, up to three weeks on a surface or water container, and over two months in a syringe (**Figure 1**).



Figure 1. Length of Time HCV Can Survive on Inanimate Objects

To eliminate infectivity associated with an HCV-contaminated solution, the solution must reach temperatures greater than 65-70°C.⁵⁻⁸ Efforts to promote safe practices among injection drug users are essential and could have a major impact on reducing exposure to HCV within this population.

Epidemiological Trends

The prevalence of chronic HCV within cohorts of people who inject drugs may rise to greater than 50% within five years of habitual IDU. The risk increases over time of exposure, with an even greater prevalence of HCV prior to 1995 during which needle exchange and HIV prevention programs were not widely available (**Figure 2, see next page**).⁹ More recently, the prevalence of acute HCV has increased in cohorts of young adults. A major factor thought to be associated with this is the resurgence of heroin use within this demographic.







Figure 2. Greater prevalence of HCV Prior to 1995

Over the last decade, the numbers of prescription opioid sales, opioidrelated deaths, and opioid treatment admissions have increased significantly (**Figure 3**).



National Vital Statistics System, DEA's Automation of Reports and Consolidated Orders System, SAMHSA's TEDS: National Center for Injury Prevention and Control (Zibbell J, CDC, Presented as part of Hepatitis C Prevention Opportunities Among PWID, April 28, 2015).

Figure 3. Prescription Opioid Sales, Opioid-Related Deaths and Opioid Treatment Admissions Have Increased Over Ten Years

Coinciding with this trend, the number of heroin users has also increased sharply as well as the number of overdose deaths related to heroin use, with a significant increase in heroin deaths among young whites compared with Hispanics and blacks. In addition, the number of Americans reporting heroin use within the past year has increased by 40% over the last decade, now with up to 4.2 million reporting use of heroin at least once in their lives. In particular, rates of first-time heroin use have increased among whites and women.¹⁰ Data suggest that individuals initially found to abuse prescription opioids may transition to heroin use, providing a link between the similar rise in both prescription opioid and heroin abuse.¹¹

The rise in IDU has been associated with a significant increase in the incidence of acute HCV infection among young cohorts, which is occurring not only in urban but also rural areas.¹² This trend reflects an increase in

exposure risks within this population. An additional group, characterized by a rapid increase in incidence of acute HCV over the last decade, is men who have sex with men (MSM). This trend has occurred most notably in MSM with HIV infection. Although the prevalence of HCV infection remains significantly elevated in MSM with a history of IDU, a progressive increase in the prevalence of HCV has also been observed in non-IDU MSM.^{13, 14}

Natural History of Chronic Infection

Acute HCV infection is typically asymptomatic and usually occurs unrecognized by the host. The incubation period can range up to 12 weeks, during which antibodies to HCV may be undetectable. Although spontaneous recovery occurs in approximately 15% to 25% of individuals acutely exposed to HCV, the majority of cases progress to chronic infection. As there is no vaccine available for HCV, the only means of prevention is limiting the potential for exposure to the virus.

Once chronic infection with HCV is established within the host, progressive chronic liver disease can occur, resulting in the development of cirrhosis in 20% to 30% of individuals within 20 years of infection. Progression to cirrhosis is highly variable. Factors associated with a more rapid progression of hepatic fibrosis and risk of cirrhosis include chronic or excessive alcohol consumption, coexisting nonalcoholic fatty liver disease, obesity, insulin resistance, older age at the time of infection, male gender, infection with HCV genotype 3, coinfection with hepatitis B or HIV, and a low CD4+ T cell count.¹⁵ Chronic HCV infection has a significant impact on survival, either in the setting of HCV monoinfection or in HIV/HCV coinfection, in which an increase in liver-related as well as non-liver-related mortality has been observed in comparison with non-infected individuals across all stages of HCV-associated liver disease.¹⁶

In its early stages, cirrhosis is often asymptomatic; however, subtle clues may be present, such as thrombocytopenia or unexplained muscle wasting. Evidence of portal hypertension can also be seen on abdominal imaging studies. An array of noninvasive measures have now become available, including laboratory-based and imaging-based options, such as transient elastography, which can provide an estimate of hepatic fibrosis or the presence of cirrhosis without the need for a liver biopsy. Although it occurs in less than 10% of patients with cirrhosis per year, progression from clinically compensated to decompensated disease can occur with overt evidence of portal hypertension characterized by an onset of ascites, hepatic encephalopathy, or variceal hemorrhage.¹⁷ This transition is associated with a significant change in prognosis and an acute increase





in mortality risk. In addition, the presence of cirrhosis is associated with an increased risk of HCC and initiation of surveillance with abdominal imaging, such as abdominal ultrasound every six months, is recommended. Once clinical decompensation occurs or HCC is recognized, patients should be referred to a specialist or liver transplant center.

Linkage to Care

HCV can be eradicated with antiviral therapy. Achievement of viral clearance defined by undetectable serum HCV RNA three months after completion therapy, known as a sustained virologic response (SVR), is durable and is equivalent to a long-term cure. The emergence of interferon-free direct-acting antiviral therapy over the last two years has led to vast improvements in treatment efficacy, in which SVR can be achieved in well over 90% of patients in all HCV genotypes, including those with HIV/HCV coinfection. Achievement of viral eradication can have a major impact on long-term outcomes, resulting in fibrosis regression, an overall reduction in all-cause mortality, improved health-related quality of life, and a reduction in the risk of events related to cardiovascular disease, kidney disease, diabetes, and malignancy.¹⁸⁻²⁰ In those with advanced liver disease, successful treatment can significantly diminish the risk of clinical decompensation, HCC, the need for liver transplantation, and mortality, independent of comorbidities or other risk factors, including the HCV genotype (**Figure 4**).^{21, 22}



Figure 4. Successful HCV Treatment Can Reduce Long-term Consequences and Mortality

Despite the known benefits of antiviral therapy, the overall rates of HCV screening and linkage to care remain low in the U.S. and are especially low in those with substance use disorders. Recent data suggest that only up to one-third of patients diagnosed with chronic HCV in the U.S. are referred to care. An even smaller proportion, approximately 10%, undergo antiviral therapy.²³ In light of the large portion of individuals with chronic HCV who remain undiagnosed, recommendations for screening have expanded to

include not only those with a history of high risk exposures, such as IDU, but also any person born between 1945 and 1965, as this age group comprises 75% of the infected population in the U.S. Screening requires initial testing for an anti-HCV antibody followed by a quantitative serum HCV RNA test to confirm chronic infection in those who are antibody positive. Once chronic HCV infection is established, genotyping can also be performed, which can guide treatment options.

Challenges Ahead

Developing programs to engage individuals with substance use disorders with a focus on education, emphasizing safe practices, prevention, and possibly initiation of effective antiviral therapy could impact the overall prevalence of HCV infection. Those with a chronic HCV infection are considered infectious to others until they are successfully treated. To reduce viral transmission among individuals who inject drugs, measures must be taken to reduce the number of contacts and the probability of transmission per contact, including the use of safe injection equipment, regular testing within networks of drug users, and potentially reducing the duration that an individual is infectious to others through successful antiviral therapy.

The impact of antiviral therapy in cohorts of injection drug users can be substantial. Treatment of only one in 100 injection drug users can decrease the prevalence of HCV infection by over 30% in a cohort with a baseline HCV prevalence of 20%.²⁴ In this way, treatment itself could essentially be a form of HCV prevention by reducing the number of individuals that represent a risk of exposure to others; however, challenges remain in minimizing the potential for reinfection and the impact of treatment among injection drug users may vary geographically.²⁵ Several studies have demonstrated that HCV treatment does not appear to have an effect on drug dependency treatment or increased drug use.^{26, 27} In addition, drug use in the months preceding the initiation of therapy is not associated with a decline in efficacy.²⁸⁻³⁰ Although data suggest HCV therapy can be successful even in patients who continue to inject drugs, more frequent drug use may be associated with a lower virologic response.²⁹ Once a treatment candidate is identified, additional challenges may involve access to medical care and access to antiviral therapy. In some cases, treatment eligibility may vary based on a history of active substance use, other risk factors, and restrictions set forth by insurance providers.^{31, 32}





A combination of increased opiate use, lack of prevention services, and restrictions to healthcare access has contributed to the rising incidence of HCV infections among persons who inject drugs. As HCV infections are asymptomatic, screening is crucial for identifying individuals at risk of not only developing chronic liver disease, but also introducing an exposure risk to others. Efforts to engage and educate this population could have a major impact on reducing the rate of acute HCV infection, the overall prevalence of chronic disease, and its associated healthcare burden. However, many challenges remain, including the stigmatization associated with HCV, reluctance to undergo screening tests, and various obstacles involving access restrictions and costs of therapy. As the landscape of antiviral therapy continues to evolve along with a rise in global awareness of HCV-related liver disease, these limitations may decline and a continued effort to target key populations at risk will ultimately have the greatest impact on achieving viral eradication.





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Triple E for HCV: Engagement, Education, and Eradication of HCV Among Patients with Substance Use Disorders

Post Test

If you wish to receive acknowledgement of participation for this activity, please complete this posttest, evaluation form, and request for credit (pages 8-11) and fax to **866-730-5480**.

Required with 66% Passing. Must get 2 out of 3 answers correct.

- 1. Which of the following statements is false?
 - O Achievement of viral clearance defined by undetectable serum HCV RNA six months after completion therapy, known as a sustained virologic response (SVR), is durable and is equivalent to a long-term cure for HCV
 - O Interferon-free direct-acting antiviral therapy can achieve SVR in more than 90% of patients in all HCV genotypes, including those with HIV/HCV coinfection
 - O HCV viral eradication can result in fibrosis regression, an overall reduction in all-cause mortality, improved health-related quality of life, and a reduction in risk of events related to cardiovascular disease, kidney disease, diabetes, and malignancy
 - O In those with advanced liver disease, successful treatment of HCV can significantly diminish the risk of clinical decompensation, HCC, need for liver transplantation, and mortality
- 2. Once a chronic HCV infection is established within the host, progressive chronic liver disease can occur and result in the development of cirrhosis in ____% of individuals within 20 years of infection.
 - O 5 10
 - O 10 15
 - O 15 20
 - O 20 30
- 3. What is the principal risk factor for an HCV infection?
 - O HIV
 - O Hemophilia
 - O Injection drug use
 - O Hemodialysis





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Annenberg Center for Health Sciences at Eisenhower respects and appreciates your opinions. To assist us in evaluating the effectiveness of this activity and to make recommendations for future educational offerings, please take a few minutes to complete this evaluation form. **To receive acknowledgement of participation for this activity, this form must be returned to the activity facilitator.**

Please answer the following questions by COMPLETELY FILLING IN THE CIRCLE for the appropriate rating: 5 =Outstanding 4 =Good 3 =Satisfactory 2 =Fair 1 =Poor

How well did this activity meet the following learning objectives?

Recognize the risks of exposure to HCV in injection drug users and identify epidemiologic trends of HCV infection in this population	5	4	3	2	1
	O	O	O	O	O
Describe the natural history of chronic HCV infection	5	4	3	2	1
	O	O	O	O	O
Demonstrate how proper HCV screening and diagnosis, as well as implementation of antiviral therapy, can improve long term outcomes in injection drug users	5	4	3	2	1
	O	O	O	O	O
Knowledge These learning objectives did or will impact my: O Please comment if the above objectives were not met	Competen O	ce Pe	o O	Pa Out	atient tcomes O
 What percentage of information presented in this activity will be of use to you? The content of this activity matched my current (or potential) scope of practice. O Yes 	20% O	40 % O	60% O	80%	100% O
O No, please explain					



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•	Was this activity scientifica	lly sound an	d free of co	ommercial bias*	or influence?
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O Yes						
O No, please explain						
* Commercial bias is defined as a personal judgment in favor of a specific p	product or service of a comm	ercial interest				
The educational activity has enhanced my professional effectiveness in treating patients		Strongly Agree	Agree	Disagree	Strongly Disagree	Not Applicable O
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• What new information did you learn during this activity?						
 Please indicate any barriers you perceive in implementing Lack of experience Lack of resources (equipment) Lack of time to assess/counsel patients Lack of consensus of professional guidelines Lack of opportunity (patients) Lack of administrative support 	 these changes. Reimbursement/ins Patient compliance No barriers Cost Other 	surance iss sissues	Jes			
• If you indicated any barriers, how will you address these barriers in order to implement changes in your knowledge competency, performance, and/or patients' outcomes?),					
Comments to help improve this activity?						
Recommendations for future educational topics.						
To assist with future planning, please attest t	o time spent on activ	ity: I spent	ł	nours on this	s program	



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Please do not use abbreviations.

We need current and <u>complete</u> information to assure delivery of participation acknowledgement.

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