

# Treatment of HCV Genotype 5 or 6

This is a PDF version of the following document:

Section 5: [Treatment of Chronic Hepatitis C Infection](#)

Topic 5: [Treatment of HCV Genotype 5 or 6](#)

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<https://www.hepatitisc.uw.edu/go/treatment-infection/treatment-genotype-5-or-6/core-concept/all>.

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## Introduction

### Background

In the United States, fewer than 2% of hepatitis C virus (HCV) infections involve genotype 5 or 6 infection.[1] In contrast, infection with HCV genotype 5 is endemic in Southern Africa, where up to 40% of individuals with chronic HCV have genotype 5 infection.[2,3] Scattered pockets of HCV genotype 5 have also been isolated from regions in Europe and North and Eastern sub-Saharan Africa.[4,5,6] There is only one subtype of HCV genotype 5 (subtype 5a).[2] Little is known about the natural history of individuals with genotype 5 HCV. Infection with HCV genotype 6 has primarily occurred in China, Hong Kong, Korea, Taiwan, and Southeast Asia, including Thailand, Vietnam, Singapore, and Malaysia.[7,8,9] Almost all cases of HCV genotype 6 in the United States have involved immigrants from Asia and Southeast Asia.[10] Available data suggest that adults with HCV genotype 6 infection have a similar natural history as those with genotype 1.[11] Because of the low prevalence of HCV genotype 5 or 6 in clinical trials, less is known about the optimal treatment of HCV genotype 5 or 6 infection compared with the more common genotypes. The following discussion regarding initial treatment and retreatment of patients with genotype 5 or 6 chronic hepatitis C assumes the patient and their clinician have already made the decision to initiate hepatitis C therapy. This topic review does not address the treatment of HCV genotype 5 or 6 in persons with decompensated cirrhosis, renal impairment, acute HCV infection, or post-liver transplantation.

### Medications used to Treat Hepatitis C

The [HCV Medications](#) section on this web site provides detailed information for each of the FDA-approved medications listed in the treatment recommendations, including links to the full prescribing information and to patient assistance programs. The direct-acting antiviral (DAA) agents exert their action at specific steps in the HCV life cycle. There are three major classes of DAA medications: nonstructural proteins 3/4A (NS3/4A) protease inhibitors, NS5A inhibitors, and NS5B polymerase inhibitors ([Figure 1](#)); the NS5B polymerase inhibitors include the nucleoside analogs and nonnucleoside analogs.[12,13] Adherence with the treatment regimen is extremely important. Thus, patients should receive detailed counseling regarding the importance of adherence prior to starting therapy, as well as intensive monitoring and follow-up during therapy.

### Approach to Choosing HCV Genotype 5 or 6 Treatment Regimen

For adults with HCV genotype 5 or 6 chronic infection, two key factors influence the choice and duration of therapy: cirrhosis status and prior treatment experience. In addition, the cost of the regimen, insurance coverage, and patient or provider preference can play a major role in the regimen choice. The following treatment recommendations are based on the AASLD-IDSA hepatitis C treatment guidance for adults with HCV genotype 5 or 6 chronic infection.[14,15]

- [AASLD-IDS A HCV Guidance for Treatment-Naïve Patients with Genotype 5 or 6 HCV](#)
- [AASLD-IDS A HCV Guidance for Treatment-Experienced Patients with Genotype 5 or 6 HCV](#)

## HCV Genotype 5 or 6: Initial Treatment

### Background

There are relatively few studies dedicated to the treatment of persons with HCV genotype 5 or 6 chronic infection, particularly for DAA therapy. Older studies in treatment-naïve patients with genotype 5 infection that have examined the combination of interferon (or peginterferon) with ribavirin for 48 weeks have reported sustained virologic response rates at 12 weeks post-treatment (SVR12) of approximately 55-70%.<sup>[4,16,17,18,19]</sup> Most of the older studies that have addressed initial treatment of persons with HCV genotype 6 are observational (with small sample sizes) and have reported sustained virologic response rates at 12-weeks posttreatment (SVR12) of 70-80% with peginterferon plus ribavirin when given for 48 weeks (and only slightly lower when given for 24 weeks).<sup>[20,21,22,23]</sup> Available data suggest SVR12 rates can exceed 95% with glecaprevir-pibrentasvir, sofosbuvir-velpatasvir, or ledipasvir-sofosbuvir for the initial therapy of HCV genotype 5 or 6 infection.<sup>[24,25,26,27,28]</sup>

### Factors to Consider Prior to Choosing Treatment Regimen

For individuals with HCV genotype 5 or 6 chronic infection, little is known regarding baseline factors that may predict response to therapy, but as with other genotypes, cirrhosis and treatment experience probably play a role.

### AASLD-IDSA HCV Guidance for Initial Treatment of HCV Genotype 5 and 6

The following is a summary of AASLD-IDSA HCV Guidance for initial treatment of adults with HCV genotype 5 or 6 infection, including those with compensated cirrhosis.<sup>[29]</sup> For individuals with cirrhosis, the AASLD-IDSA HCV Guidance defines compensated cirrhosis as Child-Turcotte-Pugh class A and decompensated cirrhosis as Child-Turcotte-Pugh class B or class C. The recommended regimens are listed by evidence level; when the evidence level is considered equivalent, the regimens are listed alphabetically.

#### Table 1. AASLD-IDSA HCV Guidance for Genotype 5 or 6: Initial Treatment Treatment-Naïve Genotype 5 or 6 Patients With and Without Compensated Cirrhosis<sup>^</sup>

Recommended regimens listed by evidence level and alphabetically

##### Recommended for Treatment-Naïve Genotype 5 or 6 Patients With and Without Compensated Cirrhosis<sup>^</sup>

###### **Glecaprevir-Pibrentasvir**

*\*Fixed-dose combination of glecaprevir (300 mg)/pibrentasvir (120 mg) once daily for 8 weeks*

For patients without cirrhosis

Rating: [Class I](#), [Level A](#)

Note: \*This is taken as 3 tablets once daily with each fixed-dose tablet containing glecaprevir (100 mg)/pibrentasvir (40 mg).

##### Recommended for Treatment-Naïve Genotype 5 or 6 Patients With and Without Compensated Cirrhosis<sup>^</sup>

###### **Glecaprevir-Pibrentasvir**

*\*Fixed-dose combination of glecaprevir (300 mg)/pibrentasvir (120 mg) once daily for 12 weeks*

For patients with compensated cirrhosis

Rating: [Class I](#), [Level A](#)

Note: \*This is taken as 3 tablets once daily with each fixed-dose tablet containing glecaprevir (100 mg)/pibrentasvir (40 mg).

**Recommended for Treatment-Naïve Genotype 5 or 6 Patients With and Without Compensated Cirrhosis<sup>^</sup>**

**Sofosbuvir-Velpatasvir**

*Fixed-dose combination of sofosbuvir (400 mg)/velpatasvir (100 mg) one tablet once daily for 12 weeks*

For patients with and without compensated cirrhosis

Rating: [Class I](#), [Level B](#)

**Recommended for Treatment-Naïve Genotype 5 or 6 Patients With and Without Compensated Cirrhosis<sup>^</sup>**

**Ledipasvir-Sofosbuvir**

*Fixed-dose combination of ledipasvir (90 mg)/sofosbuvir (400 mg) one tablet once daily for 12 weeks*

For patients with and without compensated cirrhosis

Rating: [Class IIa](#), [Level B](#)

<sup>^</sup>For treatment of patients with decompensated cirrhosis, see the AASLD-IDSA Guidance: Unique Populations—Patients with Decompensated Cirrhosis.

Source: AASLD-IDSA. Recommendations for testing, management, and treating hepatitis C. Initial treatment of HCV infection: treatment-naïve genotype 5 or 6. [[AASLD-IDSA Hepatitis C Guidance](#)] - Accessed April 28, 2019.

## Studies of Initial Treatment of Adults with HCV Genotype 5 or 6

The following key studies support the recommendations for treatment of patients with chronic hepatitis C and genotype 5 or 6 infection who are treatment naïve.

### Glecaprevir-Pibrentasvir

- [SURVEYOR-I and SURVEYOR-II](#): The SURVEYOR-I (HCV genotype 1, 4, 5, or 6) and SURVEYOR-II (HCV genotypes 2 or 3) were phase 2 open-label trials of treatment-naïve and treatment-experienced adults without cirrhosis.[30] In the SURVEYOR-I trial, participants with HCV genotype 4, 5, or 6 received 12 weeks of glecaprevir-pibrentasvir. Among those enrolled and treated, one had HCV genotype 5 and 11 had HCV genotype 6.[30] For the participants with HCV genotype 5 or 6, 100% (12 of 12) achieved an SVR12 (data not provided for number of treatment-naïve versus treatment-experienced patients with HCV genotype 5 or 6).[30]
- **ENDURANCE 5,6**: This phase 3b, open-label trial examined the safety and efficacy of glecaprevir-pibrentasvir in treatment-naïve and treatment-experienced adults with HCV genotype 5 or 6.[31] The duration of treatment was 8 weeks in participants without cirrhosis (n=75) and 12 weeks in those with compensated cirrhosis (n=9). Overall, 97.6% (82 of 84) of individuals who received treatment achieved an SVR12; treatment success occurred in 96% of participants with HCV genotype 5 and in 98% of those with HCV genotype 6. High efficacy was noted across 14 different HCV genotype 6 subtypes.[31]
- [EXPEDITION-1](#): This phase 3, single-arm, open-label trial evaluated the safety and efficacy of 12 weeks of glecaprevir-pibrentasvir in treatment-naïve and treatment-experienced adults with compensated cirrhosis and HCV genotype 1, 2, 4, 5, or 6 infection.[26] All (100%) of patients with genotype 5 (n=2) or genotype 6 (n = 7) achieved an SVR12.[26]

### Ledipasvir-Sofosbuvir

- **New Zealand Genotype 3 and 6 Study**: In this open-label, phase 2 study performed at two centers in New Zealand, investigators enrolled treatment-naïve and treatment-experienced adults with HCV genotype 3 or 6 infection.[24] One arm of this study enrolled 25 participants with HCV genotype 6 to receive a 12-week course of ledipasvir-sofosbuvir. Overall, 96% (24 of 25) individuals with HCV genotype 6 achieved an SVR12; the one person in this cohort who did not achieve an SRV12 withdrew from the study at week 8.[24] Only two of the treatment-naïve individuals with HCV genotype 6 had cirrhosis.[24]
- **Ledipasvir-Sofosbuvir for Genotype 5 Infection**: In a phase 2, open-label study conducted in France, investigators enrolled 21 treatment-naïve and 20 treatment-experienced adults with HCV genotype 5 infection to receive a 12-week course of ledipasvir-sofosbuvir.[28] For the treatment-naïve individuals with HCV genotype 5 infection, 95% (20 of 21) achieved an SVR12. For individuals with cirrhosis, 89% (8 of 9) achieved an SVR12 compared with 97% (31 of 32) without cirrhosis who achieved an SVR12.[28]

### Sofosbuvir-Velpatasvir

- [ASTRAL-1](#): In the phase 3 ASTRAL-1 trial, investigators randomized treatment-naïve and treatment-experienced adults with chronic HCV genotype 1, 2, 4, 5, or 6 infection in a 5:1 ratio to receive a 12-week course of either sofosbuvir-velpatasvir or placebo.[27] The study enrollment included 34 individuals with HCV genotype 5 infection and 41 with HCV genotype 6.[27] Among the treatment-naïve participants treated with sofosbuvir-velpatasvir, 96% (23 of 24) with HCV genotype 5 infection achieved an SVR12 and 100% (38 of 38) with HCV genotype 6 achieved an SVR12.[27]
- [POLARIS-2](#): In this phase 3, open-labeled trial, 94% (17 of 18) adults with HCV genotype 5 who received 8 weeks of sofosbuvir-velpatasvir-voxilaprevir achieved an SVR12.[32] All 30 patients with genotype 6 who received 8 weeks of sofosbuvir-velpatasvir-voxilaprevir and all

9 patients with genotype 6 who received a 12-week course of sofosbuvir-velpatasvir achieved an SVR12.[\[32\]](#)

## HCV Genotype 5 or 6: Retreating Persons who Failed Prior Therapy

### Background

Given the very low prevalence of genotypes 5 and 6 in settings where HCV therapy is accessible, limited data and experience exist with retreatment of patients with genotype 5 or 6. Recommendations are primarily based on available data in small numbers of treatment-experienced individuals with genotype 5 or 6 from clinical studies, and by extrapolating from experience with other HCV genotypes.

### Factors to Consider Prior to Choosing Treatment Regimen

For patients chronically infected with genotype 5 or 6 hepatitis C, insufficient data exist regarding the impact of cirrhosis on the optimal retreatment regimen or duration of therapy given the small numbers of patients in these trials. The retreatment of genotype 5 or 6 patients with decompensated cirrhosis, renal impairment, HIV coinfection, acute hepatitis C infection, or post-liver transplantation is not addressed in this lesson.

### AASLD-IDSA HCV Guidance for Retreatment of HCV Genotype 5 or 6

The following is a summary of AASLD-IDSA HCV Guidance for retreatment of adults with hepatitis C genotype 5 or 6 infection, including those without cirrhosis and those with compensated cirrhosis.<sup>[33,34]</sup> For individuals with cirrhosis, the AASLD-IDSA HCV Guidance defines compensated cirrhosis as Child-Turcotte-Pugh class A and decompensated cirrhosis as Child-Turcotte-Pugh class B or class C. The recommended regimens are listed by evidence level; when the evidence level is considered equivalent, the regimens are listed alphabetically.

#### Table 2. AASLD-IDSA HCV Guidance for Genotype 5 or 6: Retreatment Peginterferon plus Ribavirin-Experienced, Genotype 5 or 6 Patients With or Without Compensated Cirrhosis<sup>^</sup>

Recommended and alternative regimens listed by evidence level and alphabetically

#### Recommended for Peginterferon plus Ribavirin-Experienced, Genotype 5 or 6 Patients

With or Without Compensated Cirrhosis<sup>^</sup>

##### Glecaprevir-Pibrentasvir

*\*Fixed-dose combination of glecaprevir (300 mg)/pibrentasvir (120 mg) once daily for 8 weeks*

for patients without cirrhosis

Rating: [Class IIa](#), [Level B](#)

Note: \*This is taken as 3 tablets once daily with each fixed-dose tablet containing glecaprevir (100 mg)/pibrentasvir (40 mg).

#### Recommended for Peginterferon plus Ribavirin-Experienced, Genotype 5 or 6 Patients

With or Without Compensated Cirrhosis<sup>^</sup>

##### Glecaprevir-Pibrentasvir

*\*Fixed-dose combination of glecaprevir (300 mg)/pibrentasvir (120 mg) once daily for 12 weeks*

for patients with compensated cirrhosis

Rating: [Class I](#), [Level B](#)

Note: \*This is taken as 3 tablets once daily with each fixed-dose tablet containing glecaprevir (100

mg)/pibrentasvir (40 mg).

**Recommended for Peginterferon plus Ribavirin-Experienced, Genotype 5 or 6 Patients**

With or Without Compensated Cirrhosis<sup>^</sup>

**Ledipasvir-Sofosbuvir**

*Fixed-dose combination of ledipasvir (90 mg)/sofosbuvir (400 mg) one tablet once daily for 12 weeks*

for patients with or without compensated cirrhosis

Rating: [Class IIa](#), [Level B](#)

**Recommended for Peginterferon plus Ribavirin-Experienced, Genotype 5 or 6 Patients**

With or Without Compensated Cirrhosis<sup>^</sup>

**Sofosbuvir-Velpatasvir**

*Fixed-dose combination of sofosbuvir (400 mg)/velpatasvir (100 mg) one tablet once daily for 12 weeks*

for patients with or without compensated cirrhosis

Rating: [Class IIa](#), [Level B](#)

<sup>^</sup>For treatment of patients with decompensated cirrhosis, see the AASLD-IDSa Guidance: Unique Populations—Patients with Decompensated Cirrhosis.

Source: AASLD-IDSa. Recommendations for testing, management, and treating hepatitis C. Retreatment of persons in whom prior therapy has failed: peginterferon plus ribavirin-experienced, genotype 5 or 6 patients with or without compensated cirrhosis [[AASLD-IDSa Hepatitis C Guidance](#)] - Accessed April 28, 2019.

**Table 3. AASLD-IDSa HCV Guidance for Genotype 5 or 6: Retreatment DAA-Experienced (Including NS5A Inhibitors), Genotype 5 or 6 Patients** With or Without Compensated Cirrhosis<sup>^</sup>

**Recommended for DAA-Experienced (Including NS5A Inhibitors), Genotype 5 or 6 Patients**

With or Without Compensated Cirrhosis<sup>^</sup>

**Sofosbuvir-Velpatasvir-Voxilaprevir**

*Fixed-dose combination of sofosbuvir (400 mg)/velpatasvir (100 mg)/voxilaprevir (100 mg) one tablet once daily for 12 weeks*

Rating: [Class IIa](#), [Level B](#)

<sup>^</sup>For treatment of patients with decompensated cirrhosis, see the AASLD-IDSa Guidance: Unique Populations—Patients with Decompensated Cirrhosis.

Source: AASLD-IDSa. Recommendations for testing, management, and treating hepatitis C. Retreatment of persons in whom prior therapy has failed: DAA-experienced (including NS5A inhibitors), genotype 5 or 6 patients with or without compensated cirrhosis. [[AASLD-IDSa Hepatitis C Guidance](#)] - Accessed April 28, 2019.





## Studies of Retreatment of Adults with HCV Genotype 5 or 6

There are limited data from studies that adequately address the retreatment of adults with HCV genotype 5 or 6 infection who failed prior therapy.

### Glecaprevir-Pibrentasvir

- [SURVEYOR-I and SURVEYOR-II](#): The SURVEYOR-I (genotypes 1, 4, 5 and 6) and SURVEYOR-II (genotypes 2 and 3) were phase 2 open-label trials that enrolled treatment-naïve and treatment adults without cirrhosis.[30] In the SURVEYOR-I trial, participants with HCV genotype 4, 5, or 6 received 12 weeks of glecaprevir-pibrentasvir. Among those enrolled and treated, one had HCV genotype 5 and the other 11 had HCV genotype 6. All (100%) with genotype 5 or 6 achieved an SVR12 (data not provided for number of treatment-naïve versus treatment-experienced patients with genotype 5 or 6).[30]
- [ENDURANCE-5.6](#): This phase 3b, open-label trial examined the safety and efficacy of glecaprevir-pibrentasvir exclusively in treatment-naïve and treatment-experienced adults with HCV genotype 5 or 6.[31] Duration of treatment was 8 weeks in participants without cirrhosis (n = 75) and 12 weeks in those with compensated cirrhosis (n = 9). Overall, 97.6% (82 of 84) of individuals enrolled achieved an SVR12; treatment success occurred in 96% of participants with HCV genotype 5 and in 98% of those with HCV genotype 6.[31] High efficacy was noted across 14 different HCV genotype 6 subtypes.[31]
- [EXPEDITION-1](#): In this phase 3 single-arm open-label trial evaluated the safety and efficacy of 12 weeks of glecaprevir-pibrentasvir in treatment-naïve and treatment-experienced adults with compensated cirrhosis and genotype 1, 2, 4, 5, or 6 HCV infection.[26] All (100%) of participants with HCV genotype 5 (n=2) or HCV genotype 6 (n=7) achieved an SVR12 (data not provided for number of treatment-naïve versus treatment-experienced individuals with HCV genotype 5 or 6).[26]

### Ledipasvir-Sofosbuvir

- **Ledipasvir-Sofosbuvir for Genotype 5 Infection**: In a small, open-label study conducted in France, investigators enrolled 21 treatment-naïve adults and 20 treatment experienced adults with HCV genotype 5 infection to receive a 12-week course of ledipasvir-sofosbuvir.[28] For the treatment-experienced participants with HCV genotype 5 infection, 95% (19 of 20) achieved an SVR12; cirrhosis status did not impact the SVR12 rates.[28] Analysis of treatment response by cirrhosis status showed SVR12 rates of 89% (8 of 9) for participants with cirrhosis compared with 97% (31 of 32) for those without cirrhosis.[28]

### Sofosbuvir-Velpatasvir

- [ASTRAL-1](#): In the phase 3 ASTRAL-1 trial, investigators randomized treatment-naïve and treatment-experienced adults with HCV genotype 1, 2, 4, 5, or 6 infection in a 5:1 ratio to receive a 12-week course of either sofosbuvir-velpatasvir or placebo.[27] The study included 34 individuals with HCV genotype 5 and 41 with HCV genotype 6. The SVR12 rates for the treatment-experienced participants treated with sofosbuvir-velpatasvir were 100% (11 of 11) in those with HCV genotype 5 and 100% 3 of 3 with HCV genotype 6.[27]

### Sofosbuvir-Velpatasvir-Voxilaprevir

- [POLARIS-1](#): In this phase 3 placebo-controlled trial, investigators enrolled adults with HCV genotype 1, 2, 3, 4, 5, or 6 who had previously received treatment that included an NS5A inhibitor to receive sofosbuvir-velpatasvir-voxilaprevir for 12 weeks.[35] Individuals with HCV genotype 2, 3, 4, 5, or 6 were all assigned to the active arm. Most participants were either

ledipasvir- or daclatasvir-experienced (51% and 27%, respectively) and compensated cirrhosis was present in 46% of individuals in the active arm. For the participants with HCV genotype 5 (n=1) or genotype 6 infection (n= 6), all (100%) achieved an SRV12.[\[35\]](#)

## Summary Points

- Infection with HCV genotype 5 is uncommon in the United States, but endemic in Southern Africa.
- Infection with HCV genotype 6 is also infrequently seen in the United States and primarily found in China, Korea, Taiwan, and Southeast Asia.
- Recommendations for initial treatment or retreatment of individuals with HCV genotype 5 or 6 are based on in vitro data, limited data from clinical trials, and observational studies.
- The recommended regimens for initial treatment of adults with HCV genotype 5 or 6 include: glecaprevir-pibrentasvir for 8 weeks in those without cirrhosis and 12 weeks in those with compensated cirrhosis), sofosbuvir-velpatasvir for 12 weeks, or ledipasvir-sofosbuvir for 12 weeks.
- The recommended regimens for retreatment of peginterferon plus ribavirin-experienced adults with HCV genotype 5 or 6 infection are the same as for initial treatment.
- The recommended regimen for retreatment of DAA-experienced (including NS5A inhibitors) adults with HCV genotype 5 or 6 is sofosbuvir-velpatasvir-voxilaprevir.

## Citations

1. Manos MM, Shvachko VA, Murphy RC, Arduino JM, Shire NJ. Distribution of hepatitis C virus genotypes in a diverse US integrated health care population. *J Med Virol*. 2012;84:1744-50. [[PubMed Abstract](#)] -
2. Al Naamani K, Al Sinani S, Deschênes M. Epidemiology and treatment of hepatitis C genotypes 5 and 6. *Can J Gastroenterol*. 2013;27:e8-12. [[PubMed Abstract](#)] -
3. Antaki N, Abboud D, Antaki F, Craxi A. HCV genotype 5: an orphan virus. *Antivir Ther*. 2013;18:263-9. [[PubMed Abstract](#)] -
4. Legrand-Abravanel F, Sandres-Sauné K, Barange K, et al. Hepatitis C virus genotype 5: epidemiological characteristics and sensitivity to combination therapy with interferon-alpha plus ribavirin. *J Infect Dis*. 2004;189:1397-400. [[PubMed Abstract](#)] -
5. Abergel A, Ughetto S, Dubost S, et al. The epidemiology and virology of hepatitis C virus genotype 5 in central France. *Aliment Pharmacol Ther*. 2007;26:1437-46. [[PubMed Abstract](#)] -
6. Messina JP, Humphreys I, Flaxman A, et al. Global distribution and prevalence of hepatitis C virus genotypes. *Hepatology*. 2015;61:77-87. [[PubMed Abstract](#)] -
7. Prescott LE, Simmonds P, Lai CL, Chan NK, Pike I, Yap PL, Lin CK. Detection and clinical features of hepatitis C virus type 6 infections in blood donors from Hong Kong. *J Med Virol*. 1996;50:168-75. [[PubMed Abstract](#)] -
8. Thong VD, Akkarathamrongsin S, Poovorawan K, Tangkijvanich P, Poovorawan Y. Hepatitis C virus genotype 6: virology, epidemiology, genetic variation and clinical implication. *World J Gastroenterol*. 2014;20:2927-40. [[PubMed Abstract](#)] -
9. Bunchorntavakul C, Chavalitdhamrong D, Tanwandee T. Hepatitis C genotype 6: A concise review and response-guided therapy proposal. *World J Hepatol*. 2013;5:496-504. [[PubMed Abstract](#)] -
10. Nguyen NH, Vutien P, Trinh HN, et al. Risk factors, genotype 6 prevalence, and clinical characteristics of chronic hepatitis C in Southeast Asian Americans. *Hepatol Int*. 2010;4:523-9. [[PubMed Abstract](#)] -
11. Seto WK, Lai CL, Fung J, et al. Natural history of chronic hepatitis C: genotype 1 versus genotype 6. *J Hepatol*. 2010;53:444-8. [[PubMed Abstract](#)] -
12. Manns MP, Buti M, Gane E, et al. Hepatitis C virus infection. *Nat Rev Dis Primers*. 2017;3:17006. [[PubMed Abstract](#)] -
13. Scheel TK, Rice CM. Understanding the hepatitis C virus life cycle paves the way for highly

- effective therapies. *Nat Med.* 2013;19:837-49.  
[[PubMed Abstract](#)] -
14. AASLD-IDSA. Recommendations for testing, management, and treating hepatitis C. Treatment-Naive Genotype 5 or 6.  
[[AASLD-IDSA Hepatitis C Guidance](#)] -
  15. AASLD-IDSA. Recommendations for testing, management, and treating hepatitis C. Treatment-Experienced Genotype 5 or 6.  
[[AASLD-IDSA Hepatitis C Guidance](#)] -
  16. D'Heygere F, George C, Van Vlierberghe H, et al. Efficacy of interferon-based antiviral therapy in patients with chronic hepatitis C infected with genotype 5: a meta-analysis of two large prospective clinical trials. *J Med Virol.* 2011;83:815-9.  
[[PubMed Abstract](#)] -
  17. Bonny C, Fontaine H, Poynard T, et al Effectiveness of interferon plus ribavirin combination in the treatment of naive patients with hepatitis C virus type 5. A French multicentre retrospective study. *Aliment Pharmacol Ther.* 2006;24:593-600.  
[[PubMed Abstract](#)] -
  18. Antaki N, Hermes A, Hadad M, Ftayeh M, Antaki F, Abdo N, Kebbewar K. Efficacy of interferon plus ribavirin in the treatment of hepatitis C virus genotype 5. *J Viral Hepat.* 2008;15:383-6.  
[[PubMed Abstract](#)] -
  19. Devaki P, Jencks D, Yee BE, Nguyen MH. Sustained virologic response to standard interferon or pegylated interferon and ribavirin in patients with hepatitis C virus genotype 5: systematic review and meta-analysis of ten studies and 423 patients. *Hepatol Int.* 2015;9:431-7.  
[[PubMed Abstract](#)] -
  20. Lam KD, Trinh HN, Do ST, et. al. Randomized controlled trial of pegylated interferon-alfa 2a and ribavirin in treatment-naive chronic hepatitis C genotype 6. *Hepatology* 2010;52:1573-80.  
[[PubMed Abstract](#)] -
  21. Thuy PT, Bunchorntavakul C, Tan Dat H, Rajender Reddy K. A randomized trial of 48 versus 24 weeks of combination pegylated interferon and ribavirin therapy in genotype 6 chronic hepatitis C. *J Hepatol.* 2012;56:1012-8.  
[[PubMed Abstract](#)] -
  22. Wang X, Liu F, Wei F, Ren H, Hu H. Efficacy and safety of pegylated interferon plus ribavirin therapy for chronic hepatitis C genotype 6: a meta-analysis. *PLoS One.* 2014;9:e100128.  
[[PubMed Abstract](#)] -
  23. Nguyen MH, Trinh HN, Garcia R, Nguyen G, Lam KD, Keeffe EB. Higher rate of sustained virologic response in chronic hepatitis C genotype 6 treated with 48 weeks versus 24 weeks of peginterferon plus ribavirin. *Am J Gastroenterol.* 2008;103:1131-5.  
[[PubMed Abstract](#)] -
  24. Gane EJ, Hyland RH, An D, et al. Efficacy of ledipasvir and sofosbuvir, with or without ribavirin, for 12 weeks in patients with HCV genotype 3 or 6 infection. *Gastroenterology.* 2015;149:1454-1461.e1.  
[[PubMed Abstract](#)] -
  25. Asselah T, Kowdley KV, Zadeikis N, et al. Efficacy of Glecaprevir/Pibrentasvir for 8 or 12

Weeks in Patients With Hepatitis C Virus Genotype 2, 4, 5, or 6 Infection Without Cirrhosis. Clin Gastroenterol Hepatol. 2018;16:417-426.

[[PubMed Abstract](#)] -

26. Forns X, Lee SS, Valdes J, et al. Glecaprevir plus pibrentasvir for chronic hepatitis C virus genotype 1, 2, 4, 5, or 6 infection in adults with compensated cirrhosis (EXPEDITION-1): a single-arm, open-label, multicentre phase 3 trial. Lancet Infect Dis. 2017;17:1062-1068. [[PubMed Abstract](#)] -
27. Feld JJ, Jacobson IM, Hézode C, et al. Sofosbuvir and Velpatasvir for HCV Genotype 1, 2, 4, 5, and 6 Infection. N Engl J Med. 2015;373:2599-607. [[PubMed Abstract](#)] -
28. Abergel A, Asselah T, Metivier S, et al. Ledipasvir-sofosbuvir in patients with hepatitis C virus genotype 5 infection: an open-label, multicentre, single-arm, phase 2 study. Lancet Infect Dis. 2016;16:459-64. [[PubMed Abstract](#)] -
29. AASLD-IDSA. Recommendations for testing, management, and treating hepatitis C. Initial treatment of HCV infection: treatment-naïve genotype 5 or 6. [[AASLD-IDSA Hepatitis C Guidance](#)] -
30. Kwo PY, Poordad F, Asatryan A, et al. Glecaprevir and pibrentasvir yield high response rates in patients with HCV genotype 1-6 without cirrhosis. J Hepatol. 2017;67:263-271. [[PubMed Abstract](#)] -
31. Asselah T, Lee SS, Yao BB, et al. Efficacy and safety of glecaprevir/pibrentasvir in patients with chronic hepatitis C virus genotype 5 or 6 infection (ENDURANCE-5,6): an open-label, multicentre, phase 3b trial. Lancet Gastroenterol Hepatol. 2019;4:45-51. [[PubMed Abstract](#)] -
32. Jacobson IM, Lawitz E, Gane EJ, et al. Efficacy of 8 Weeks of Sofosbuvir, Velpatasvir, and Voxilaprevir in Patients With Chronic HCV Infection: 2 Phase 3 Randomized Trials. Gastroenterology. 2017;153:113-22. [[PubMed Abstract](#)] -
33. AASLD-IDSA. Recommendations for testing, management, and treating hepatitis C. Retreatment of persons in whom prior therapy has failed: peginterferon plus ribavirin-experienced, genotype 5 or 6 patients with or without compensated cirrhosis [[AASLD-IDSA Hepatitis C Guidance](#)] -
34. AASLD-IDSA. Recommendations for testing, management, and treating hepatitis C. Retreatment of persons in whom prior therapy has failed: DAA-experienced (including NS5A inhibitors), genotype 5 or 6 patients with or without compensated cirrhosis. [[AASLD-IDSA Hepatitis C Guidance](#)] -
35. Bourlière M, Gordon SC, Flamm SL, et al. Sofosbuvir, Velpatasvir, and Voxilaprevir for Previously Treated HCV Infection. N Engl J Med. 2017;376:2134-46. [[PubMed Abstract](#)] -

## References

- European Association for the Study of the Liver. EASL recommendations on treatment of hepatitis C 2015. [[EASL](#)] -

- Kowdley KV, Lawitz E, Crespo I, et al. Sofosbuvir with pegylated interferon alfa-2a and ribavirin for treatment-naive patients with hepatitis C genotype-1 infection (ATOMIC): an open-label, randomised, multicentre phase 2 trial. *Lancet*. 2013;381:2100-7.  
[\[PubMed Abstract\]](#) -
- Lawitz E, Mangia A, Wyles D, et al. Sofosbuvir for previously untreated chronic hepatitis C infection. *N Engl J Med*. 2013;368:1878-87.  
[\[PubMed Abstract\]](#) -
- Lenz O, Vijgen L, Berke JM, et al. Virologic response and characterisation of HCV genotype 2-6 in patients receiving TMC435 monotherapy (study TMC435-C202). *J Hepatol*. 2013;58:445-51.  
[\[PubMed Abstract\]](#) -
- Mauss S, Berger F, Vogel M, et al. Treatment results of chronic hepatitis C genotype 5 and 6 infections in Germany. *Z Gastroenterol*. 2012;50:441-4.  
[\[PubMed Abstract\]](#) -
- McOmish F, Yap PL, Dow BC, et al. Geographical distribution of hepatitis C virus genotypes in blood donors: an international collaborative survey. *J Clin Microbiol*. 1994;32:884-92.  
[\[PubMed Abstract\]](#) -
- Nguyen MH, Keeffe EB. Prevalence and treatment of hepatitis C virus genotypes 4, 5, and 6. *Clin Gastroenterol Hepatol*. 2005;3(10 Suppl 2):S97-S101.  
[\[PubMed Abstract\]](#) -
- Nguyen NH, Nguyen MH. Current Treatment Options in Patients with Hepatitis C Virus Genotype 6. *Gastroenterol Clin North Am*. 2015;44:871-81.  
[\[PubMed Abstract\]](#) -
- Papastergiou V, Skorda L, Ligos P, et al. Hepatitis C virus genotype 5: prospective evaluation of peginterferon/ribavirin treatment efficacy and predictive value of on-treatment virological responses for sustained virological response. *J Clin Gastroenterol*. 2014;48:160-5.  
[\[PubMed Abstract\]](#) -
- Smuts HE, Kannemeyer J. Genotyping of hepatitis C virus in South Africa. *J Clin Microbiol*. 1995;33:1679-81.  
[\[PubMed Abstract\]](#) -
- Wantuck JM, Ahmed A, Nguyen MH. Review article: the epidemiology and therapy of chronic hepatitis C genotypes 4, 5 and 6. *Aliment Pharmacol Ther*. 2014;39:137-47.  
[\[PubMed Abstract\]](#) -



## Figures

Figure 1 Classes of Direct-Acting Antiviral Agents Used to Treat HCV

NS3/4A Protease Inhibitors	NS5A Inhibitors	NS5B Polymerase Inhibitors
Boceprevir	Daclatasvir	Dasabuvir
Glecaprevir	Elbasvir	Sofosbuvir
Grazoprevir	Ledipasvir	
Paritaprevir	Ombitasvir	
Simeprevir	Pibrentasvir	
Telaprevir	Velpatasvir	
Voxilaprevir		

**Table 1. AASLD-IDSA HCV Guidance for Genotype 5 or 6: Initial Treatment Treatment-Naïve Genotype 5 or 6 Patients With and Without Compensated Cirrhosis<sup>^</sup>**

Recommended regimens listed by evidence level and alphabetically

**Recommended for Treatment-Naïve Genotype 5 or 6 Patients With and Without Compensated Cirrhosis<sup>^</sup>**

**Glecaprevir-Pibrentasvir**

*\*Fixed-dose combination of glecaprevir (300 mg)/pibrentasvir (120 mg) once daily for 8 weeks*

For patients without cirrhosis

Rating: [Class I, Level A](#)

Note: \*This is taken as 3 tablets once daily with each fixed-dose tablet containing glecaprevir (100 mg)/pibrentasvir (40 mg).

**Recommended for Treatment-Naïve Genotype 5 or 6 Patients With and Without Compensated Cirrhosis<sup>^</sup>**

**Glecaprevir-Pibrentasvir**

*\*Fixed-dose combination of glecaprevir (300 mg)/pibrentasvir (120 mg) once daily for 12 weeks*

For patients with compensated cirrhosis

Rating: [Class I, Level A](#)

Note: \*This is taken as 3 tablets once daily with each fixed-dose tablet containing glecaprevir (100 mg)/pibrentasvir (40 mg).

**Recommended for Treatment-Naïve Genotype 5 or 6 Patients With and Without Compensated Cirrhosis<sup>^</sup>**

**Sofosbuvir-Velpatasvir**

*Fixed-dose combination of sofosbuvir (400 mg)/velpatasvir (100 mg) one tablet once daily for 12 weeks*

For patients with and without compensated cirrhosis

Rating: [Class I, Level B](#)

**Recommended for Treatment-Naïve Genotype 5 or 6 Patients With and Without Compensated Cirrhosis<sup>^</sup>**

**Ledipasvir-Sofosbuvir**

*Fixed-dose combination of ledipasvir (90 mg)/sofosbuvir (400 mg) one tablet once daily for 12 weeks*

For patients with and without compensated cirrhosis

Rating: [Class IIa, Level B](#)

<sup>^</sup>For treatment of patients with decompensated cirrhosis, see the AASLD-IDSA Guidance: Unique Populations—Patients with Decompensated Cirrhosis.

Source: AASLD-IDSA. Recommendations for testing, management, and treating hepatitis C. Initial

treatment of HCV infection: treatment-naive genotype 5 or 6. [[AASLD-IDSA Hepatitis C Guidance](#)] - Accessed April 28, 2019.

**Table 2. AASLD-IDSA HCV Guidance for Genotype 5 or 6: Retreatment Peginterferon plus Ribavirin-Experienced, Genotype 5 or 6 Patients** With or Without Compensated Cirrhosis<sup>^</sup>

Recommended and alternative regimens listed by evidence level and alphabetically

**Recommended for Peginterferon plus Ribavirin-Experienced, Genotype 5 or 6 Patients** With or Without Compensated Cirrhosis<sup>^</sup>

**Glecaprevir-Pibrentasvir**

*\*Fixed-dose combination of glecaprevir (300 mg)/pibrentasvir (120 mg) once daily for 8 weeks*

for patients without cirrhosis

Rating: [Class IIa](#), [Level B](#)

Note: \*This is taken as 3 tablets once daily with each fixed-dose tablet containing glecaprevir (100 mg)/pibrentasvir (40 mg).

**Recommended for Peginterferon plus Ribavirin-Experienced, Genotype 5 or 6 Patients** With or Without Compensated Cirrhosis<sup>^</sup>

**Glecaprevir-Pibrentasvir**

*\*Fixed-dose combination of glecaprevir (300 mg)/pibrentasvir (120 mg) once daily for 12 weeks*

for patients with compensated cirrhosis

Rating: [Class I](#), [Level B](#)

Note: \*This is taken as 3 tablets once daily with each fixed-dose tablet containing glecaprevir (100 mg)/pibrentasvir (40 mg).

**Recommended for Peginterferon plus Ribavirin-Experienced, Genotype 5 or 6 Patients** With or Without Compensated Cirrhosis<sup>^</sup>

**Ledipasvir-Sofosbuvir**

*Fixed-dose combination of ledipasvir (90 mg)/sofosbuvir (400 mg) one tablet once daily for 12 weeks*

for patients with or without compensated cirrhosis

Rating: [Class IIa](#), [Level B](#)

**Recommended for Peginterferon plus Ribavirin-Experienced, Genotype 5 or 6 Patients** With or Without Compensated Cirrhosis<sup>^</sup>

**Sofosbuvir-Velpatasvir**

*Fixed-dose combination of sofosbuvir (400 mg)/velpatasvir (100 mg) one tablet once daily for 12 weeks*

for patients with or without compensated cirrhosis

Rating: [Class IIa](#), [Level B](#)

<sup>^</sup>For treatment of patients with decompensated cirrhosis, see the AASLD-IDSA Guidance: Unique Populations—Patients with Decompensated Cirrhosis.

Source: AASLD-IDSA. Recommendations for testing, management, and treating hepatitis C.

Retreatment of persons in whom prior therapy has failed: peginterferon plus ribavirin-experienced, genotype 5 or 6 patients with or without compensated cirrhosis [[AASLD-IDSA Hepatitis C Guidance](#)] - Accessed April 28, 2019.

**Table 3. AASLD-IDSA HCV Guidance for Genotype 5 or 6: Retreatment DAA-Experienced (Including NS5A Inhibitors), Genotype 5 or 6 Patients** With or Without Compensated Cirrhosis<sup>^</sup>

**Recommended for DAA-Experienced (Including NS5A Inhibitors), Genotype 5 or 6 Patients** With or Without Compensated Cirrhosis<sup>^</sup>

**Sofosbuvir-Velpatasvir-Voxilaprevir**

*Fixed-dose combination of sofosbuvir (400 mg)/velpatasvir (100 mg)/voxilaprevir (100 mg) one tablet once daily for 12 weeks*

Rating: [Class IIa](#), [Level B](#)

<sup>^</sup>For treatment of patients with decompensated cirrhosis, see the AASLD-IDSA Guidance: Unique Populations—Patients with Decompensated Cirrhosis.

Source: AASLD-IDSA. Recommendations for testing, management, and treating hepatitis C. Retreatment of persons in whom prior therapy has failed: DAA-experienced (including NS5A inhibitors), genotype 5 or 6 patients with or without compensated cirrhosis. [[AASLD-IDSA Hepatitis C Guidance](#)] - Accessed April 28, 2019.

