

Treatment of HCV Genotype 1

This is a PDF version of the following document:

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

Topic 1: [Treatment of HCV Genotype 1](#)

You can always find the most up to date version of this document at

<https://www.hepatitisc.uw.edu/go/treatment-infection/treatment-genotype-1/core-concept/all>.

Introduction

Background

In the United States, genotype 1 hepatitis C virus (HCV) accounts for approximately 70 to 75% of all HCV infections.[1] Accordingly, treatment of genotype 1 has the most extensive data and highest clinical relevance for hepatitis C treatment issues in the United States. In recent years, multiple studies using direct-acting antiviral agents have shown sustained virologic response rates at 12 weeks post-treatment (SVR12) of greater than 95% in treatment-naïve and treatment-experienced genotype 1 patients, including those with compensated cirrhosis. The high cost of these very effective regimens has limited the widespread implementation of hepatitis treatment in the United States, but recently, lower priced options have become available. The following discussion regarding initial treatment and retreatment of patients with genotype 1 chronic HCV 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 1 in persons with decompensated cirrhosis, renal impairment, acute HCV infection, or post-liver transplantation.

Medications used to Treat HCV Genotype 1

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 agents exert their action at specific steps in the HCV life cycle. There are three major classes of direct-acting antiviral medications: nonstructural proteins 3/4A (NS3/4A) protease inhibitors, NS5A inhibitors, and NS5B polymerase inhibitors; the NS5B polymerase inhibitors include the nucleoside analogs and nonnucleoside analogs ([Figure 1](#)).[2,3] Adherence with the treatment regimen is of paramount importance. Persons receiving treatment for HCV 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 1 Treatment Regimen

For individuals with chronic HCV genotype 1 infection, three key factors influence the choice and duration of therapy: (1) the genotype 1 subtype (1a or 1b), (2) cirrhosis status, and (3) prior treatment experience. With the use of certain regimens for persons with genotype 1A infection, the presence of baseline NS5A resistance may also be relevant for all or a subset of these individuals. In addition, the cost of the regimen, insurance coverage, and provider preference can play a major role in the regimen choice. The AASLD-IDSAs have issued regularly updated guidance on the treatment of patients with hepatitis C. The following treatment recommendations are based on the AASLD-IDSAs HCV Guidance for individuals with HCV genotype 1.[4,5]

- [AASLD-IDSA HCV Guidance for Treatment-Naïve Patients with Genotype 1 HCV](#)
- [AASLD-IDSA HCV Guidance for Treatment-Experienced Patients with Genotype 1 HCV](#)

HCV Genotype 1: Initial Treatment

Background

The treatment landscape for treatment-naïve adults with chronic hepatitis C virus (HCV) genotype 1 infection has rapidly changed in recent years. Historically, genotype 1 HCV was considered the most difficult to treat HCV genotype. From 1998-2013, therapy evolved from interferon monotherapy, to peginterferon monotherapy, to peginterferon plus ribavirin, to triple therapy with peginterferon plus ribavirin plus an NS3A/4A protease inhibitor (boceprevir or telaprevir).[\[6,7,8,9\]](#) In late 2013 and most of 2014, the standard of care for initial therapy of HCV genotype 1 consisted of peginterferon plus ribavirin plus either sofosbuvir or simeprevir.[\[10,11,12,13\]](#) Since 2015, the standard of care for HCV genotype 1 has consisted of all-oral therapy with a combination of direct-acting antiviral agents (DAAs). In 2017, there are multiple safe, convenient, and highly effective all-oral regimens recommended for the treatment of HCV genotype 1, most of which do not require ribavirin.

Factors to Consider Prior to Choosing Initial Treatment Regimen

For treatment-naïve adults with chronic HCV genotype 1 infection, three key factors influence the choice and duration of therapy: (1) genotype 1 subtype (1a or 1b) and (2) presence or absence of cirrhosis, (3) coexistent renal disease, and (4) medication cost or insurance considerations. If the HCV genotype 1 subtype is not known, the individual should be treated as HCV genotype 1a. The baseline HCV RNA value generally does not influence the treatment choice or duration, except in treatment-naïve noncirrhotic patients in whom 8 or 12 weeks of ledipasvir-sofosbuvir is being considered. A post-hoc analysis from the ION-3 trial in treatment-naïve adults without cirrhosis noted that participants with HCV genotype 1 and a baseline HCV RNA level less than 6 million IU/mL had similar relapse rates using 8 or 12 weeks of therapy.[\[14\]](#) Additional data from the HCV-TARGET registry and the Veterans Affairs National Healthcare System demonstrated comparable high SVR rates of 94-98% for adults without cirrhosis treated with either 8 or 12 weeks of ledipasvir-sofosbuvir if the baseline HCV RNA levels were less than 6 million IU/mL.[\[15,16,17\]](#) In addition to the factors noted above, drug interactions may also influence the choice of therapy, particularly for individuals coinfecting with HIV who are taking antiretroviral medications. Of note, individuals with HCV and HIV coinfection are eligible for most of the same regimens as HCV monoinfected patients, except for the 8-week option of ledipasvir-sofosbuvir.

Baseline Resistance Testing

In treatment-naïve individuals, baseline genotypic drug resistance testing is not recommended for most of the first-line DAA regimens, with the exception of elbasvir-grazoprevir. Pretreatment NS5A genotypic drug resistance testing is recommended for all persons with HCV genotype 1a in whom elbasvir-grazoprevir is being considered to detect the presence of NS5A resistance-associated substitutions at the amino acid positions 28, 30, 31, or 93, which are associated with inferior treatment response.[\[18\]](#) The presence of one or more of these resistance-associated substitutions (present in up to 10% of treatment-naïve adults) requires adding of ribavirin to the treatment regimen and extending the duration of elbasvir-grazoprevir from 12 to 16 weeks.[\[18\]](#) The 16-week combination of elbasvir-grazoprevir plus ribavirin is more complex and considered an alternative regimen. Genotypic drug resistance testing is commercially available through several laboratories and typically costs less than \$1000.

AASLD-IDSA HCV Guidance for Initial Treatment of HCV Genotype 1

The following is a summary of the AASLD-IDSA HCV Guidance recommendations for the initial treatment of adults with HCV genotype 1a or 1b; these recommendations include separate tables for adults without cirrhosis and for those with compensated cirrhosis.[\[19,20,21,22\]](#) 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 C (see [Child-Turcotte-Pugh Calculator](#)). 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 1a: Initial Treatment Treatment-Naïve Genotype 1a Patients Without Cirrhosis

Recommended and alternative regimens listed by evidence level and alphabetically

Recommended for Treatment-Naïve Genotype 1a Patients Without Cirrhosis

Elbasvir-Grazoprevir
Fixed-dose combination of elbasvir (50 mg)/grazoprevir (100 mg) one tablet once daily for 12 weeks
 For patients without baseline NS5A resistance-associated substitutions (RASs) for elbasvir; these NS5A RASs include genotype 1a RASs at amino acid positions 28, 30, 31, or 93 known to confer antiviral resistance.
 Rating: [Class I](#), [Level A](#)

Recommended for Treatment-Naïve Genotype 1a Patients Without Cirrhosis

Glecaprevir-Pibrentasvir
**Fixed-dose combination of glecaprevir (300 mg)/pibrentasvir (120 mg) once daily for 8 weeks*
 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 1a Patients Without Cirrhosis

Ledipasvir-Sofosbuvir
Fixed-dose combination of ledipasvir (90 mg)/sofosbuvir (400 mg) one tablet once daily for 12 weeks
 Rating: [Class I](#), [Level A](#)

Recommended for Treatment-Naïve Genotype 1a Patients Without Cirrhosis

Ledipasvir-Sofosbuvir
Fixed-dose combination of ledipasvir (90 mg)/sofosbuvir (400 mg) one tablet once daily for 8 weeks
 For patients who are non-black, HIV-uninfected, and whose HCV RNA level is

Studies of Initial Treatment of Adults with HCV Genotype 1

The following summarizes key studies that support the recommendations in the AASLD-IDS A HCV Guidance for initial treatment of patients with chronic hepatitis C and genotype 1 infection, including those without cirrhosis and those with compensated cirrhosis; the medication regimens are listed in alphabetical order.

Daclatasvir and Sofosbuvir

- [AI444040](#): The phase 2a AI444040 trial design included multiple treatment arms of daclatasvir plus sofosbuvir, with or without ribavirin.[23] Enrollment included treatment-naïve and treatment-experienced adults with HCV genotype 1 and treatment-naïve adults with HCV genotype 2 or 3. Subjects enrolled received either a 12- or 24-week treatment course, with or without ribavirin. For the treatment-naïve HCV genotype 1 participants who received a 12-week course of daclatasvir plus sofosbuvir, with or without ribavirin, 98% (80 of 82) achieved an SVR12.
- [ALLY-2](#): In the phase 3 ALLY-2 trial, treatment-naïve and treatment-experienced adults with HIV coinfection and HCV genotype 1, 2, 3, or 4 received daclatasvir plus sofosbuvir.[24] The treatment-naïve participants received either 12 weeks (n=101) or 8 weeks (n=50) of therapy; approximately 10% of the HCV treatment-naïve participants had cirrhosis. For the treatment-naïve persons with HCV genotype 1 infection, the SVR12 rates were 96% (80 of 83) with 12 weeks of therapy and 76% (31 of 41) with 8 weeks of therapy. The SVR12 responses in treatment-naïve individuals with genotype 1 and cirrhosis were 89% (8 of 9) in the 12-week arm and 50% (2 of 4) in the 8-week arm.

Elbasvir-Grazoprevir

- [C-EDGE Treatment-Naïve](#): In this phase 3 trial, investigators enrolled treatment-naïve adults with HCV genotype 1, 4, or 6 to receive a 12-week course of fixed-dose elbasvir-grazoprevir.[25] The study enrollment included 288 patients with genotype 1 infection. The SVR 12 rates were 92% (144 of 157) in those with genotype 1a and 99% (129 of 131) with genotype 1b. Participants with genotype 1a who had baseline NS5A resistance-associated substitutions had a significantly lower SVR12 response rate (58%) than those without any baseline NS5A resistance-associated substitution (99%); the baseline resistance-associated substitutions did not significantly impact the SVR12 rates in patients with genotype 1b.
- [C-WORTHY](#): This open-label, phase 2 trial enrolled adults with HCV genotype 1, including treatment-naïve adults with compensated cirrhosis (cohort 1, n=123) and treatment-experienced adults with a prior null response to peginterferon plus ribavirin (cohort 2, n=130).[26] Participants were randomized to receive elbasvir plus grazoprevir, with or without ribavirin, for 12 or 18 weeks. In the HCV treatment-naïve cirrhotic cohort, 90-97% achieved an SVR12. A subgroup analysis did not show a significant benefit of adding ribavirin to elbasvir plus grazoprevir.

Glecaprevir-Pibrentasvir

- [ENDURANCE-1](#): In this phase 3 open-label trial, 703 noncirrhotic adults with HCV genotype 1 were randomized to receive either 8 or 12 weeks of glecaprevir-pibrentasvir; 62% were treatment naïve.[27] Among those enrolled, 33 were coinfecting with HIV. The SVR12 rate was 99.1% (333 of 336) for the 8-week arm and 99.7% (333 of 334) for the 12-week arm; the SVR rate remained high in participants with HIV coinfection, prior treatment experience, and baseline resistance-associated substitutions.
- [EXPEDITION-1](#): This phase 3 single-arm open-label trial evaluated the safety and efficacy of 12 weeks of glecaprevir-pibrentasvir in 146 adults with compensated cirrhosis and HCV

genotype 1, 2, 4, 5, or 6.[28] Among all participants enrolled, 60% had HCV genotype 1 infection and 75% were treatment naïve. For the participants with HCV genotype 1 infection, 99% (89 of 90) achieved an SVR12. One person with genotype 1a experienced a viral relapse at week 8 post-treatment; this individual had a Y93N resistance-associated substitution detected at baseline and at the time of virologic failure.

- **EXPEDITION-2:** In this phase 3, open-label, dual-arm trial, 137 noncirrhotic adults with HIV coinfection and HCV genotype 1, 2, 3, 4, 5 or 6; the 137 participants without cirrhosis received 8 weeks of glecaprevir-pibrentasvir and the 16 participants with compensated cirrhosis received 12 weeks of glecaprevir-pibrentasvir.[29] All (100%) of the 94 participants with HCV genotype 1 achieved an SVR12. Most of the study participants were taking either raltegravir, dolutegravir or rilpivirine as the anchor drug for antiretroviral therapy.

Ledipasvir-Sofosbuvir

- **ION-1:** This phase 3 trial examined the fixed-dose combination of ledipasvir-sofosbuvir, given with or without ribavirin, in treatment-naïve adults with HCV genotype 1, including those with compensated cirrhosis.[30] All treatment arms had SVR12 rates greater than 95%; no differences were observed with respect to receipt of ribavirin, or whether patients received 12 or 24 weeks of treatment.
- **ION-3:** In this phase 3 trial, treatment-naïve adults with HCV genotype 1 received the fixed-dose combination of ledipasvir-sofosbuvir, with or without ribavirin, for 8 or 12 weeks.[14] Persons with cirrhosis were excluded. The SVR12 rates were greater than 90% in all treatment arms. In a post hoc analysis of participants without cirrhosis and without receipt of ribavirin, subjects with a baseline HCV RNA level less than 6 million IU/mL had similar SVR rates and relapse rates with 8 weeks versus 12 weeks of therapy.

Ombitasvir-Paritaprevir-Ritonavir and Dasabuvir

- **SAPPHIRE-I:** This phase 3 trial enrolled treatment-naïve adults with HCV genotype 1 to receive a 12-week treatment course with ombitasvir-paritaprevir-ritonavir and dasabuvir plus ribavirin.[31] The SVR12 rates were greater than 95% in both the HCV genotype 1a and 1b groups. There was a trend towards lower SVR rates in patients with more advanced fibrosis.
- **PEARL-III and PEARL-IV:** These phase 3 trials enrolled HCV treatment-naïve adults to receive a 12-week treatment course with ombitasvir-paritaprevir-ritonavir and dasabuvir, with or without ribavirin.[32] Overall, the SVR12 rates were greater than 90%, but participants with HCV genotype 1a had lower SVR12 rates if treatment did not include ribavirin when compared with those who received ribavirin (90.2% versus 97.0%).
- **TUROUOISE-II:** This phase 3 trial enrolled treatment-naïve and treatment-experienced adults with chronic HCV genotype 1 infection, including those with compensated cirrhosis, to receive a 12- or 24-week treatment course with ombitasvir-paritaprevir-ritonavir and dasabuvir plus ribavirin [33]. For the HCV treatment-naïve participants, the SVR12 rates were similar with 12 or 24 weeks of therapy in persons with HCV genotype 1a (92.2% versus 92.9%) and those with HCV genotype 1b (100% in both groups).

Simeprevir plus Sofosbuvir

- **OPTIMIST-1:** In this randomized, phase 3, open-label trial, investigators compared an 8-week versus 12-week regimen of simeprevir plus sofosbuvir in adults with HCV genotype 1, including treatment-naïve and treatment-experienced adults without cirrhosis.[34] For the treatment-naïve participants in the 12-week arm, 97% (112 of 115) achieved an SVR12, which was significantly higher than the 83% (128 of 155) in the treatment-naïve 8-week arm. This study shows a 12-week regimen of simeprevir plus sofosbuvir is highly effective and well tolerated in treatment-naïve, noncirrhotic adults with HCV genotype 1 infection. Similar findings were observed in the treatment-experienced participants.

- [OPTIMIST-2](#): This randomized, phase 3, open-label, single-arm trial examined the effectiveness and safety of a 12-week treatment course with simeprevir plus sofosbuvir in adults with HCV genotype 1 and compensated cirrhosis; enrollment included treatment-naïve or treatment experienced adults.[35] For the HCV treatment-naïve participants, 88% (44 of 50) achieved an SVR12. In the combined data for treatment-naïve and treatment-experienced participants with HCV genotype 1a infection, the SVR12 rates were higher in subjects without a baseline Q80K mutation than those with the baseline Q80K mutation (92% versus 74%). This study demonstrates a 12-week regimen of simeprevir plus sofosbuvir is moderately effective in treatment-naïve adults with cirrhosis and HCV genotype 1, except that individuals with genotype 1a and the baseline Q80K mutation have lower SVR rates.

Sofosbuvir-Velpatasvir

- [ASTRAL-1](#): In the phase 3 ASTRAL-1 trial, investigators enrolled treatment-naïve and treatment-experienced adults with chronic HCV genotype 1, 2, 4, 5, or 6 infection and randomized them in a 5:1 ratio to receive a 12-week course of either sofosbuvir-velpatasvir or placebo.[36] For those participants assigned to sofosbuvir-velpatasvir (n=624), 34% had genotype 1a, 19% had genotype 1b, 19% had compensated cirrhosis, and 28% were HCV treatment-experienced.[36] Among the 624 individuals who received sofosbuvir-velpatasvir, the overall SVR12 rate was 99%, including 98% (206 of 210) with genotype 1a and 99% (117 of 118) with genotype 1b. For the HCV treatment-naïve participants, 99% (418 of 423) achieved an SVR12. Among the 121 participants with cirrhosis, 120 (99%) of 121 achieved an SVR 12.[36] Baseline NS5A RASs, which were present in 42% of evaluated participants, did not appear to influence SVR12. There was no significant difference in the rate of adverse events between the treatment and placebo arms.

Sofosbuvir-Velpatasvir-Voxilaprevir

- [POLARIS-2](#): In this phase 3, open-labeled trial, individuals with chronic HCV genotype 1, 2, 3, or 4 infection who were naïve to DAA therapy (prior peginterferon and ribavirin allowed) were randomized to receive either 8 weeks of sofosbuvir-velpatasvir-voxilaprevir or 12 weeks of sofosbuvir-velpatasvir.[37] Among the 941 participants, 18% had compensated cirrhosis and 49% had HCV genotype 1 infection. Sustained virologic response (SVR) occurred in 95% and 98% in sofosbuvir-velpatasvir-voxilaprevir and sofosbuvir-velpatasvir arms respectively. Notably, SVR occurred in 90% of persons with cirrhosis in the 8-week arm compared with 99% in the 12-week sofosbuvir-velpatasvir arm.[37] The investigators concluded that this study did not establish sofosbuvir-velpatasvir-voxilaprevir for 8 weeks was noninferior to sofosbuvir-velpatasvir for 12 weeks.[37]

HCV Genotype 1: Retreatment of Persons who Failed Prior Therapy

Background

Direct-acting antiviral combinations have markedly improved treatment outcomes for persons with HCV genotype 1 infection who have failed prior therapy, with SVR12 rates exceeding 95%. Given the very high SVR rates both with initial treatment and retreatment using DAAs, the number of treatment-experienced individuals is diminishing as a sub-population. Prior failure with a regimen that included an NS3/4A protease inhibitor (boceprevir or telaprevir) does not impact the success of subsequent therapy with the NS5A inhibitors (ledipasvir or ombitasvir), or NS5B inhibitors (dasabuvir or sofosbuvir), but may potentially impact that of subsequent treatment with simeprevir or paritaprevir, the later generation HCV protease inhibitors. Thus, use of a regimen that includes simeprevir or paritaprevir is not recommended for retreatment of patients who previously failed therapy that included boceprevir or telaprevir. In contrast, the newer HCV protease inhibitors grazoprevir (coformulated as elbasvir-grazoprevir), glecaprevir (coformulated as glecaprevir-pibrentasvir), and voxilaprevir (coformulated as sofosbuvir-velpatasvir-voxilaprevir) appear to have activity against the typical NS3/4A resistance-associated substitutions encountered in telaprevir- or boceprevir-experienced patients and can be used effectively in such patients. Retreatment must now also consider options for DAA-experienced patients who have previously failed therapy with simeprevir plus sofosbuvir, or a regimen that included an NS5A inhibitor.

Factors to Consider Prior to Choosing Retreatment Regimen

For persons with chronic HCV genotype 1 infection who have treatment experience, the key factors that influence the choice of the retreatment regimen are (1) the prior regimen used when treatment failure occurred, (2) HCV genotype 1 subtype, (3) the presence or absence of cirrhosis, and (4) cost or insurance considerations.[\[38\]](#) If the HCV genotype 1 subtype is not known, the individual should be treated as HCV genotype 1a. The retreatment of persons with HCV genotype 1 who have decompensated cirrhosis, renal impairment, acute HCV infection, or post-liver transplantation is not addressed here. For individuals with HCV-HIV coinfection, the approach to retreatment is the same as with HCV mono-infection, with the exception that additional drug interactions between DAAs and antiretroviral medications need to be taken into consideration.

Baseline Resistance Testing

When considering the use of elbasvir-grazoprevir in treatment-experienced persons, note that pretreatment NS5A resistance testing is recommended for all with HCV genotype 1a infection to detect NS5A resistance-associated substitutions at the amino acid positions M28, Q30, L31, or Y93. Just as in treatment-naïve individuals, the presence of one or more of these resistance-associated substitution requires adding ribavirin to the regimen and extending the course of elbasvir-grazoprevir to 16 weeks.[\[18,39\]](#) In addition, for treatment-experienced persons with genotype 1a HCV (with or without cirrhosis) in whom ledipasvir-sofosbuvir is being considered, NS5A resistance-associated substitution testing can provide guidance on an optimal regimen. If greater than 100-fold resistance is present, a different recommended regimen should be considered, or treatment should include weight-based ribavirin for 12 weeks (in patients without cirrhosis) or 24 weeks (in those with cirrhosis). These options (with ribavirin or longer therapy) are considered alternative options, given the greater complexity. [\[40\]](#)

AASLD-IDSA HCV Guidance for Retreatment of HCV Genotype 1

The following is a summary of the AASLD-IDSA HCV Guidance for adults with hepatitis C genotype 1a or 1b infection who are treatment experienced and failed prior therapy, including those without cirrhosis and those with compensated cirrhosis.[\[41,42,43,44,45,46,47\]](#) 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 5. AASLD-IDSA HCV Guidance for Genotype 1a: Retreatment Peginterferon plus Ribavirin Treatment-Experienced, Genotype 1a Patients Without Cirrhosis

Recommended and alternative regimens listed by evidence level and alphabetically

Recommended for Peginterferon plus Ribavirin Treatment-Experienced, Genotype 1a Patients Without Cirrhosis

Elbasvir-Grazoprevir

Fixed-dose combination of elbasvir (50 mg)/grazoprevir (100 mg) one tablet once daily for 12 weeks

For patients without baseline NS5A resistance-associated substitutions (RASs) for elbasvir; these NS5A RASs include genotype 1a RASs at amino acid positions 28, 30, 31, or 93 known to confer antiviral resistance.

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

Recommended for Peginterferon plus Ribavirin Treatment-Experienced, Genotype 1a Patients Without Cirrhosis

Glecaprevir-Pibrentasvir

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

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 Peginterferon plus Ribavirin Treatment-Experienced, Genotype 1a Patients Without Cirrhosis

Ledipasvir-Sofosbuvir

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

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

Recommended for Peginterferon plus Ribavirin Treatment-Experienced, Genotype 1a Patients Without Cirrhosis

Sofosbuvir-Velpatasvir

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

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

Alternative for Peginterferon plus Ribavirin Treatment-Experienced, Genotype 1a Patients Without Cirrhosis

Ombitasvir-Paritaprevir-Ritonavir and Dasabuvir

Fixed-dose combination of ombitasvir (25 mg)/paritaprevir (150 mg)/ritonavir (50 mg) once daily plus dasabuvir (250 mg) twice daily for 12 weeks

+

Ribavirin

1000 mg if <75 kg or 1200 mg if ≥75 kg for 12 weeks (the daily dose is given in two divided doses)

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

Note: *Alternatively, the extended-release regimen can be used and this consists of a fixed-dose combination of dasabuvir (600 mg)/ombitasvir (25 mg)/paritaprevir (150 mg)/ritonavir (100 mg). The extended-release regimen is taken as 3 extended release tablets once daily; each fixed-dose tablet contains dasabuvir (200 mg)/ombitasvir (8.33 mg)/paritaprevir (50 mg)/ritonavir (33.33 mg).

Alternative for Peginterferon plus Ribavirin Treatment-Experienced, Genotype 1a Patients Without Cirrhosis

Simeprevir

(150 mg) one tablet once daily for 12 weeks

+

Sofosbuvir

(400 mg) one tablet once daily for 12 weeks

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

Alternative for Peginterferon plus Ribavirin Treatment-Experienced, Genotype 1a Patients Without Cirrhosis

Daclatasvir

**(60 mg) one tablet once daily for 12 weeks*

+

Sofosbuvir

(400 mg) one tablet once daily for 12 weeks

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

Note: *The dose of daclatasvir may need to be increased or decreased when used concomitantly with cytochrome P450 3A/4 inducers and inhibitors, respectively. See the daclatasvir prescribing information for details.

Alternative for Peginterferon plus Ribavirin Treatment-Experienced, Genotype 1a Patients Without Cirrhosis

Elbasvir-Grazoprevir

Fixed-dose combination of elbasvir (50 mg)/grazoprevir (100 mg) one tablet once daily for 16 weeks

+

Ribavirin

1000 mg/day if <75 kg or 1200 mg/day if ≥75 kg for 16 weeks (the daily dose is given in two divided doses)

For patients with baseline NS5A resistance-associated substitutions (RASs) for elbasvir; these NS5A RASs include genotype 1a RASs at amino acid positions 28, 30, 31, or 93 known to confer antiviral resistance.

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

Source: AASLD-IDSA. Recommendations for testing, management, and treating hepatitis C. Retreatment of persons in whom prior therapy has failed: peginterferon/ribavirin-experienced, genotype 1a patients without cirrhosis. [[AASLD-IDSA Hepatitis C Guidance](#)] - Accessed April 28, 2019.

Table 6. AASLD-IDSA HCV Guidance for Genotype 1a: Retreatment Peginterferon plus Ribavirin Treatment-Experienced, Genotype 1a Patients

With Compensated Cirrhosis[^]

Recommended and alternative regimens listed by evidence level and alphabetically

Recommended for Peginterferon plus Ribavirin Treatment-Experienced, Genotype 1a Patients With Compensated Cirrhosis[^]

Elbasvir-Grazoprevir

Fixed-dose combination of elbasvir (50 mg)/grazoprevir (100 mg) one tablet once daily for 12 weeks

For patients without baseline NS5A resistance-associated substitutions (RASs) for elbasvir; these NS5A RASs include genotype 1a RASs at amino acid positions 28, 30, 31, or 93 known to confer antiviral resistance.

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

Recommended for Peginterferon plus Ribavirin Treatment-Experienced, Genotype 1a Patients With Compensated Cirrhosis[^]

Sofosbuvir-Velpatasvir

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

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

Recommended for Peginterferon plus Ribavirin Treatment-Experienced, Genotype 1a Patients With Compensated Cirrhosis[^]

Glecaprevir-Pibrentasvir

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

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).

Alternative for Peginterferon plus Ribavirin Treatment-Experienced, Genotype 1a Patients With Compensated Cirrhosis[^]

Ledipasvir-Sofosbuvir

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

+

Ribavirin

1000 mg/day if <75 kg or 1200 mg/day if ≥75 kg for 12 weeks (the daily dose is given in two divided doses)

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

Alternative for Peginterferon plus Ribavirin Treatment-Experienced, Genotype 1a Patients With Compensated Cirrhosis[^]

Elbasvir-Grazoprevir

Fixed-dose combination of elbasvir (50 mg)/grazoprevir (100 mg) one tablet once daily for 16 weeks

+

Ribavirin

1000 mg/day if <75 kg or 1200 mg/day if ≥75 kg for 16 weeks (the daily dose is given in two divided doses)

For patients with baseline NS5A resistance-associated substitutions (RASs) for elbasvir; these NS5A RASs include genotype 1a RASs at amino acid positions 28, 30, 31, or 93 known to confer antiviral

resistance.

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

^For treatment of patients with decompensated cirrhosis, see the AASLD-IDS A Guidance: Unique Populations—Patients with Decompensated Cirrhosis.

Source: AASLD-IDS A. Recommendations for testing, management, and treating hepatitis C. Retreatment of persons in whom prior therapy has failed: peginterferon/ribavirin-experienced, genotype 1a patients with compensated cirrhosis. [[AASLD-IDS A Hepatitis C Guidance](#)] - Accessed April 28, 2019.

Table 7. AASLD-IDS A HCV Guidance for Genotype 1b: Retreatment Peginterferon plus Ribavirin-Experienced, Genotype 1b Patients Without Cirrhosis

Recommended and alternative regimens listed by evidence level and alphabetically

Recommended for Peginterferon plus Ribavirin-Experienced, Genotype 1b Patients Without Cirrhosis

Elbasvir-Grazoprevir

Fixed-dose combination of elbasvir (50 mg)/grazoprevir (100 mg) one tablet once daily for 12 weeks

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

Recommended for Peginterferon plus Ribavirin-Experienced, Genotype 1b Patients Without Cirrhosis

Glecaprevir-Pibrentasvir

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

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

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

Recommended for Peginterferon plus Ribavirin-Experienced, Genotype 1b Patients Without Cirrhosis

Ledipasvir-Sofosbuvir

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

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

Recommended for Peginterferon plus Ribavirin-Experienced, Genotype 1b Patients Without Cirrhosis

Sofosbuvir-Velpatasvir

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

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

Alternative for Peginterferon plus Ribavirin-Experienced, Genotype 1b Patients Without Cirrhosis

Ombitasvir-Paritaprevir-Ritonavir and Dasabuvir

**Fixed-dose combination of ombitasvir (25 mg)/paritaprevir (150 mg)/ritonavir (50 mg) once daily plus dasabuvir (250 mg) twice daily for 12 weeks*

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

Note: *Alternatively, the extended-release regimen can be used and this consists of a fixed-dose combination of dasabuvir (600 mg)/ombitasvir (25 mg)/paritaprevir (150 mg)/ritonavir (100 mg). The extended-release regimen is taken as 3 extended release tablets once daily; each fixed-dose tablet contains dasabuvir (200 mg)/ombitasvir (8.33 mg)/paritaprevir (50 mg)/ritonavir (33.33 mg).

Alternative for Peginterferon plus Ribavirin-Experienced, Genotype 1b Patients Without Cirrhosis

Simeprevir

(150 mg) one tablet once daily for 12 weeks

+

Sofosbuvir

(400 mg) one tablet once daily for 12 weeks

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

Alternative for Peginterferon plus Ribavirin-Experienced, Genotype 1b Patients Without Cirrhosis

Daclatasvir

**(60 mg) one tablet once daily for 12 weeks*

+

Sofosbuvir

(400 mg) one tablet once daily for 12 weeks

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

Note: *The dose of daclatasvir may need to be increased or decreased when used concomitantly with cytochrome P450 3A/4 inducers and inhibitors, respectively. See the daclatasvir prescribing information for details.

Source: AASLD-IDSA. Recommendations for testing, management, and treating hepatitis C. Retreatment of persons in whom prior therapy has failed: peginterferon/ribavirin-experienced, genotype 1b patients without cirrhosis. [[AASLD-IDSA Hepatitis C Guidance](#)] - Accessed April 28, 2019.

Table 8. AASLD-IDSA HCV Guidance for Genotype 1b: Retreatment Peginterferon plus Ribavirin Treatment-Experienced, Genotype 1b Patients With Compensated Cirrhosis[^]

Recommended for Peginterferon plus Ribavirin Treatment-Experienced, Genotype 1b Patients With Compensated Cirrhosis[^]

Elbasvir-Grazoprevir

Fixed-dose combination of elbasvir (50 mg)/grazoprevir (100 mg) one tablet once daily for 12 weeks

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

Recommended for Peginterferon plus Ribavirin Treatment-Experienced, Genotype 1b Patients With Compensated Cirrhosis[^]

Sofosbuvir-Velpatasvir

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

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

Recommended for Peginterferon plus Ribavirin Treatment-Experienced, Genotype 1b Patients With Compensated Cirrhosis[^]

Glecaprevir-Pibrentasvir

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

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).

Alternative for Peginterferon plus Ribavirin Treatment-Experienced, Genotype 1b Patients With Compensated Cirrhosis[^]

Ledipasvir-Sofosbuvir

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

+ Ribavirin

1000 mg/day if <75 kg or 1200 mg/day if ≥75 kg for 12 weeks (the daily dose is given in two divided doses)

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

Alternative for Peginterferon plus Ribavirin Treatment-Experienced, Genotype 1b Patients With Compensated Cirrhosis[^]

Ombitasvir-Paritaprevir-Ritonavir and Dasabuvir

*#*Fixed-dose combination of ombitasvir (25 mg)/paritaprevir (150 mg)/ritonavir (50 mg) once daily plus dasabuvir (250 mg) twice daily for 12 weeks*

#See the warning in the product information regarding risk of serious liver injury when using ombitasvir-paritaprevir-ritonavir plus dasabuvir in patients with cirrhosis

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

Note: *Alternatively, the extended-release regimen can be used and this consists of a fixed-dose combination of dasabuvir (600 mg)/ombitasvir (25 mg)/paritaprevir (150 mg)/ritonavir (100 mg). The extended-release regimen is taken as 3 extended release tablets once daily; each fixed-dose tablet contains dasabuvir (200 mg)/ombitasvir (8.33 mg)/paritaprevir (50 mg)/ritonavir (33.33 mg).

[^]For treatment of patients with decompensated cirrhosis, see the AASLD-IDS A Guidance: Unique Populations—Patients with Decompensated Cirrhosis.

Source: AASLD-IDS A. Recommendations for testing, management, and treating hepatitis C. Retreatment of persons in whom prior therapy has failed: peginterferon/ribavirin-experienced, genotype 1b with compensated cirrhosis. [[AASLD-IDS A Hepatitis C Guidance](#)] - Accessed April 28,

2019.

Table 9. AASLD-IDSA HCV Guidance for Genotype 1: Retreatment HCV NS3 Protease Inhibitor (Telaprevir, Boceprevir, or Simeprevir) plus Peginterferon and Ribavirin-Experienced, Genotype 1 Patients Without Cirrhosis

Recommended and alternative regimens listed by evidence level and alphabetically

Recommended for HCV NS3 Protease Inhibitor (Telaprevir, Boceprevir, or Simeprevir) plus Peginterferon and Ribavirin-Experienced, Genotype 1 Patients Without Cirrhosis

Ledipasvir-Sofosbuvir

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

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

Recommended for HCV NS3 Protease Inhibitor (Telaprevir, Boceprevir, or Simeprevir) plus Peginterferon and Ribavirin-Experienced, Genotype 1 Patients Without Cirrhosis

Sofosbuvir-Velpatasvir

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

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

Recommended for HCV NS3 Protease Inhibitor (Telaprevir, Boceprevir, or Simeprevir) plus Peginterferon and Ribavirin-Experienced, Genotype 1 Patients Without Cirrhosis

Glecaprevir-Pibrentasvir

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

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).

Alternative for HCV NS3 Protease Inhibitor (Telaprevir, Boceprevir, or Simeprevir) plus Peginterferon and Ribavirin-Experienced, Genotype 1 Patients Without Cirrhosis

Elbasvir-Grazoprevir

Fixed-dose combination of elbasvir (50 mg)/grazoprevir (100 mg) one tablet once daily for 12 weeks

+ Ribavirin

1000 mg/day if <75 kg or 1200 mg/day if ≥75 kg for 12 weeks (the daily dose is given in two divided doses)

For all genotype 1b patients, and genotype 1a patients without baseline NS5A resistance-associated substitutions (RASs) for elbasvir; the RASs includes genotype 1a RASs at amino acid positions 28, 30, 31, or 93 known to confer antiviral resistance.

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

Alternative for HCV NS3 Protease Inhibitor (Telaprevir, Boceprevir, or Simeprevir) plus Peginterferon and Ribavirin-Experienced, Genotype 1 Patients Without Cirrhosis

<p>Elbasvir-Grazoprevir Fixed-dose combination of elbasvir (50 mg)/grazoprevir (100 mg) one tablet once daily for 16 weeks</p>	+	<p>Ribavirin 1000 mg/day if <75 kg or 1200 mg/day if ≥75 kg for 16 weeks (the daily dose is given in two divided doses)</p>
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For genotype 1a patients with baseline NS5A resistance-associated substitutions (RASs) for elbasvir; the RASs includes genotype 1a RASs at amino acid positions 28, 30, 31, or 93 known to confer antiviral resistance

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

Source: AASLD-IDSA. Recommendations for testing, management, and treating hepatitis C. Retreatment of persons in whom prior therapy has failed: NS3 protease inhibitor + peginterferon/ribavirin-experienced, genotype 1 patients without cirrhosis. [[AASLD-IDSA Hepatitis C Guidance](#)] - Accessed April 28, 2019.

Table 10. AASLD-IDSA HCV Guidance for Genotype 1: Retreatment HCV NS3 Protease Inhibitor (Telaprevir, Boceprevir, or Simeprevir) plus Peginterferon and Ribavirin-Experienced, Genotype 1 Patients With Compensated Cirrhosis[^]

Recommended and alternative regimens listed by evidence level and alphabetically

Recommended for HCV NS3 Protease Inhibitor (Telaprevir, Boceprevir, or Simeprevir) plus Peginterferon and Ribavirin-Experienced, Genotype 1 Patients With Compensated Cirrhosis[^]

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

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

Recommended for HCV NS3 Protease Inhibitor (Telaprevir, Boceprevir, or Simeprevir) plus Peginterferon and Ribavirin-Experienced, Genotype 1 Patients With Compensated Cirrhosis[^]

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

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).

Alternative for HCV NS3 Protease Inhibitor (Telaprevir, Boceprevir, or Simeprevir) plus Peginterferon and Ribavirin-Experienced, Genotype 1 Patients With Compensated Cirrhosis[^]

Ledipasvir-Sofosbuvir

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

+

Ribavirin

1000 mg/day if <75 kg or 1200 mg/day if ≥75 kg for 12 weeks (the daily dose is given in two divided doses)

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

Alternative for HCV NS3 Protease Inhibitor (Telaprevir, Boceprevir, or Simeprevir) plus Peginterferon and Ribavirin-Experienced, Genotype 1 Patients With Compensated Cirrhosis[^]

Elbasvir-Grazoprevir

Fixed-dose combination of elbasvir (50 mg)/grazoprevir (100 mg) one tablet once daily for 12 weeks

+

Ribavirin

1000 mg/day if <75 kg or 1200 mg/day if ≥75 kg for 12 weeks (the daily dose is given in two divided doses)

For all genotype 1b patients, and genotype 1a patients without baseline NS5A resistance-associated substitutions (RASs) for elbasvir; the RASs includes genotype 1a RASs at amino acid positions 28, 30, 31, or 93 known to confer antiviral resistance.

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

Alternative for HCV NS3 Protease Inhibitor (Telaprevir, Boceprevir, or Simeprevir) plus Peginterferon and Ribavirin-Experienced, Genotype 1 Patients With Compensated Cirrhosis[^]

Elbasvir-Grazoprevir

Fixed-dose combination of elbasvir (50 mg)/grazoprevir (100 mg) one tablet once daily for 16 weeks

+

Ribavirin

1000 mg if <75 kg or 1200 mg if ≥75 kg for 16 weeks (the daily dose is given in two divided doses)

For genotype 1a patients with baseline NS5A resistance-associated substitutions (RASs) for elbasvir; the RASs includes genotype 1a RASs at amino acid positions 28, 30, 31, or 93 known to confer antiviral resistance

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

[^]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: NS3 protease inhibitor + peginterferon/ribavirin-experienced, genotype 1 patients with compensated cirrhosis. [[AASLD-IDSA Hepatitis C Guidance](#)] - Accessed April 28, 2019.

Table 11. AASLD-IDSA HCV Guidance for Genotype 1: Retreatment Non-NS5A Inhibitor, Sofosbuvir-Containing Regimen-Experienced, Genotype 1 Patients Without Cirrhosis

Recommended and alternative regimens listed by evidence level and alphabetically

Recommended for Non-NS5A Inhibitor, Sofosbuvir-Containing Regimen-Experienced,

Genotype 1 Patients Without Cirrhosis

Sofosbuvir-Velpatasvir-Voxilaprevir

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

For genotype 1a patients

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

Recommended for Non-NS5A Inhibitor, Sofosbuvir-Containing Regimen-Experienced,

Genotype 1 Patients Without Cirrhosis

Glecaprevir-Pibrentasvir

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

Regardless of HCV genotype 1 subtype

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 Non-NS5A Inhibitor, Sofosbuvir-Containing Regimen-Experienced,

Genotype 1 Patients Without Cirrhosis

Sofosbuvir-Velpatasvir

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

For genotype 1b patients

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

Alternative for Non-NS5A Inhibitor, Sofosbuvir-Containing Regimen-Experienced,

Genotype 1 Patients Without Cirrhosis

Ledipasvir-Sofosbuvir

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

+

Ribavirin

1000 mg/day if <75 kg or 1200 mg/day if ≥75 kg for 12 weeks (the daily dose is given in two divided doses)

Except in simeprevir failures

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

Source: AASLD-IDSA. Recommendations for testing, management, and treating hepatitis C. Retreatment of persons in whom prior therapy has failed: non-NS5A inhibitor, sofosbuvir-containing regimen-experienced, genotype 1 patients without cirrhosis. [[AASLD-IDSA Hepatitis C Guidance](#)] - Accessed April 28, 2019.

Table 12. AASLD-IDSA HCV Guidance for Genotype 1: Retreatment Non-NS5A Inhibitor, Sofosbuvir-Containing Regimen-Experienced, Genotype 1 Patients With Compensated Cirrhosis[^]

Recommended regimens listed by evidence level and alphabetically

Recommended for Non-NS5A Inhibitor, Sofosbuvir-Containing Regimen-Experienced, Genotype 1 Patients With Compensated Cirrhosis[^]

Sofosbuvir-Velpatasvir-Voxilaprevir

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

For genotype 1a patients

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

Recommended for Non-NS5A Inhibitor, Sofosbuvir-Containing Regimen-Experienced, Genotype 1 Patients With Compensated Cirrhosis[^]

Glecaprevir-Pibrentasvir

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

Regardless of genotype 1 subtype

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 Non-NS5A Inhibitor, Sofosbuvir-Containing Regimen-Experienced, Genotype 1 Patients With Compensated Cirrhosis[^]

Sofosbuvir-Velpatasvir

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

For genotype 1b patients

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

[^]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: non-NS5A inhibitor, sofosbuvir-containing regimen-experienced, genotype 1 patients with compensated cirrhosis. [[AASLD-IDSA Hepatitis C Guidance](#)] - Accessed April 28, 2019.

Table 13. AASLD-IDSA HCV Guidance for Genotype 1: Retreatment HCV NS5a Inhibitor DAA-Experienced Genotype 1 Patients, With or Without Compensated Cirrhosis[^]

Recommended for HCV NS5a Inhibitor DAA-Experienced Genotype 1 Patients, With or Without Compensated Cirrhosis[^]

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 I](#), [Level A](#)

Alternative for HCV NS5a Inhibitor DAA-Experienced Genotype 1 Patients, With or Without Compensated Cirrhosis[^]

Glecaprevir-Pibrentasvir

**Fixed-dose combination of glecaprevir (300 mg)/pibrentasvir (120 mg) once daily for 16 weeks*

Except NS3/4 protease inhibitor inclusive DAA combination regimens

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).

[^]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: NS5A inhibitor DAA-experienced genotype 1 patients. [[AASLD-IDSA Hepatitis C Guidance](#)] - Accessed April 28, 2019.

Studies of Retreatment of Adults with HCV Genotype 1

The following key studies support the recommendations in the AASLD-IDSAs HCV Guidance for retreatment of adults with chronic HCV genotype 1 infection who previously failed therapy.

Daclatasvir and Sofosbuvir

- [ALLY-2](#): In the ALLY-2 trial, treatment-naïve and treatment-experienced adults with HCV genotype 1, 2, 3 or 4 and HIV coinfection received daclatasvir and sofosbuvir.[24] All with HCV genotype 1 who were previously treated were assigned to receive 12 weeks of therapy. Overall, SVR12 was achieved in 98% (43 of 44) treatment-experienced participants with genotype 1 infection.
- [A1444040](#): The A1444040 trial had multiple treatment arms of daclatasvir plus sofosbuvir, with or without ribavirin. Enrollment included treatment-naïve and treatment-experienced adults with HCV genotype 1, and treatment-naïve adults with HCV genotype 2 or 3.[23] The treatment-experienced participants with HCV genotype 1 infection (n=41) received 24 weeks of therapy, with or without ribavirin; 22% (9 of 41) of these patients had cirrhosis. The SVR12 rates for the treatment-experienced participants were 95% (19 of 20) and 100% (21 of 21) for those who received 24 weeks of daclatasvir and sofosbuvir, with and without ribavirin respectively.

Elbasvir-Grazoprevir

- [C-EDGE Treatment-Experienced](#): This phase 3 trial enrolled 420 treatment-experienced adults with HCV genotype 1, 4, or 6 to receive the fixed-dose elbasvir-grazoprevir, with or without ribavirin, for 12 or 16 weeks.[39] Overall, 89% of participants enrolled had HCV genotype 1 (54% with genotype 1a and 35% with genotype 1b). For participants with HCV genotype 1 who received 12 weeks of treatment, SVR12 was achieved in 94.7% (89 of 94) in the elbasvir-grazoprevir arm and 94.4% (84 of 89) in the elbasvir-grazoprevir plus ribavirin arm. For those with HCV genotype 1 who received 16 weeks of treatment, SVR12 was obtained in 95.8% (91 of 95) in the elbasvir-grazoprevir arm and in 100% (92 of 92) in the elbasvir-grazoprevir plus ribavirin arm. For individuals with HCV genotype 1 who had baseline NS3 resistance-associated substitutions detected, the SVR12 responses were clearly improved by the addition of ribavirin and the best responses were seen with the addition of ribavirin and extension of treatment to 16 weeks.
- **Pooled NS5A Resistance Study of Elbasvir-Grazoprevir**: This publication summarized a pooled multi-study analysis of baseline NS5A resistance data from the phase 2/3 trials of elbasvir-grazoprevir.[48,49] Among those enrolled with HCV genotype 1a, approximately 5% of the treatment-naïve and 10% of the prior peginterferon plus ribavirin non-responders were found to have at least one NS5A resistance-associated substitution at baseline.[48,49] The resistance-associated substitutions at positions 30, 31 and 93 (detected by population-based sequencing or next-generation sequencing at a sensitivity threshold of 10%) were found to have the greatest impact on treatment efficacy. In comparison, participants with HCV genotype 1b were minimally impacted by the presence of baseline NS5A resistance-associated substitutions.

Glecaprevir-Pibrentasvir

- [ENDURANCE-1](#): In this phase 3 open-label trial, 703 noncirrhotic adults with HCV genotype 1 were randomized to receive either 8 or 12 weeks of glecaprevir-pibrentasvir.[27] Among those enrolled, 38% were treatment-experienced (3 were sofosbuvir experienced and the remainder interferon experienced) and 33 had HIV coinfection.[27] The SVR12 rate was 99% for the 8-week arm and 99.7% for the 12-week arm, and the SVR rate remained high in persons with HIV coinfection, prior treatment experience, and baseline resistance-associated

substitutions.

- [EXPEDITION-1](#): This phase 3, single-arm open-label trial evaluated the safety and efficacy of 12 weeks of glecaprevir-pibrentasvir in 146 adults with compensated cirrhosis and HCV genotype 1, 2, 4, 5, or 6 infection.[28] Sixty percent had HCV genotype 1 and 75% were treatment naïve. For participants with HCV genotype 1 infection, 99% (89 of 90) achieved an SRV12. One participant with HCV genotype 1a had a viral relapse at week 8 post-treatment; resistance testing detected a Y93N resistance-associated substitution at baseline and at the time of failure.
- [EXPEDITION-2](#): This phase 3, open-label, dual-arm trial enrolled adults with HCV genotype 1, 2, 3, 4, 5, or 6 and HIV coinfection; 137 participants without cirrhosis received 8 weeks of glecaprevir-pibrentasvir and 16 participants with compensated cirrhosis received 12 weeks of glecaprevir-pibrentasvir.[29] Among the 94 participants with HCV genotype 1, 100% achieved an SVR12. All but 10 who enrolled in the study were taking either raltegravir, dolutegravir, or rilpivirine as the anchor drug for HIV antiretroviral therapy.

Ledipasvir-Sofosbuvir

- [ION-2](#): In this phase 3 trial, 440 treatment-experienced adults with HCV genotype 1 infection, with or without cirrhosis, received a 12- or 24-week treatment with fixed-dose combination ledipasvir-sofosbuvir, with or without ribavirin.[50] For participants in the 12-week arm, SVR12 was achieved in 94% (102 of 109) treated with ledipasvir-sofosbuvir and in 96% (107 of 111) treated with ledipasvir-sofosbuvir plus ribavirin; with 24 weeks of therapy the SVR12 rates were 99%, with or without ribavirin. Individuals with cirrhosis who received 12 weeks of therapy had lower SVR rates than those without cirrhosis. In addition, participants with cirrhosis had higher SVR rates with 24 weeks of ledipasvir-sofosbuvir than with 12 weeks (100% versus 86%).
- [NIAID Retreatment of Sofosbuvir Failures](#): In this small single-arm study by the NIAID, adults with HCV genotype 1 infection who had relapsed with prior therapy with 24 weeks of sofosbuvir and ribavirin in the SPARE study were subsequently treated with 12 weeks of ledipasvir-sofosbuvir and 100% (14 of 14) achieved an SVR12.[51]
- [Retreatment of Sofosbuvir Failures from prior Clinical Trials](#): This phase 2 trial enrolled adults with genotype 1 chronic HCV who failed a sofosbuvir-containing regimen while participating in a phase 2 or 3 Gilead-sponsored clinical trial.[52] In a 12-week treatment arm, study participants received retreatment with ledipasvir-sofosbuvir plus ribavirin. The study design permitted enrollment of individuals with compensated cirrhosis. Preliminary results from this 12-week group showed an SVR12 rate of 98% (50 of 51).
- [SIRIUS](#) This phase 2, double-blind trial compared the efficacy of a 12-week course of ledipasvir-sofosbuvir plus ribavirin versus a 24-week course of ledipasvir-sofosbuvir in treatment-experienced adults with HCV genotype 1 and compensated cirrhosis.[53] Investigators enrolled 155 participants in the trial and all had previously sequentially failed dual therapy with peginterferon and ribavirin and triple therapy with peginterferon and ribavirin and an NS3/4A protease inhibitor. Among persons who received a 12-week course of ledipasvir-sofosbuvir plus ribavirin, 96% achieved and SVR12 compared with 97% in the group that received a 24-week course of ledipasvir-sofosbuvir. This study suggests that in genotype 1 treatment-experienced patients with cirrhosis, a 12-week course of ledipasvir-sofosbuvir plus ribavirin provides similar SVR12 rates as a 24-week course of ledipasvir-sofosbuvir and this 12-week regimen provides a more cost-effective option.[53]

Ombitasvir-Paritaprevir-Ritonavir and Dasabuvir

- [SAPPHIRE-II](#): In this phase 3 trial, investigators examined the safety and efficacy of a 12-week course of ombitasvir-paritaprevir-ritonavir and dasabuvir plus ribavirin in adults with chronic

hepatitis C infection, genotype 1, without cirrhosis, who had previously failed treatment with peginterferon and ribavirin.[54] Among participants who received ombitasvir-paritaprevir-ritonavir and dasabuvir plus ribavirin, 96% (286 of 297) achieved an SVR12, with similar results observed with genotype 1a (96%) and 1b (97%). This study shows a 12-week course of ombitasvir-paritaprevir-ritonavir and dasabuvir plus ribavirin is highly effective in persons with genotype 1 HCV who previously failed treatment with peginterferon and ribavirin.

- **TUROUOISE-II:** This phase 3 trial enrolled treatment-naïve and treatment-experienced adults with chronic HCV genotype 1 and Child-Turcotte-Pugh class A cirrhosis. Participants received ombitasvir-paritaprevir-ritonavir and dasabuvir plus ribavirin regimen for 12 weeks (Group A) or 24 weeks (Group B).[33] The overall SVR12 rates were 92% in Group A (191 of 208) and 96% (165 of 172) in Group B. For those with genotype 1a, SVR12 rates were 89% (124 of 140) for group A 94% (114 of 121) for group B. For participants with genotype 1b, SVR12 rates were 99% (67 of 68) in Group A and 100% (50 of 51) in Group B. There was a clinically meaningful difference in the SVR12 between the 12-week and 24-week treatment groups in patients with Genotype 1a infection and prior null response (80% versus 92.9%), which suggests that individuals in this subgroup probably benefit from extending therapy to 24 weeks.
- **TUROUOISE-III:** In this phase 3, open-label trial, investigators enrolled treatment-naïve and treatment-experienced adults with HCV genotype 1b and Child-Pugh class A cirrhosis to receive a 12-week treatment course with ombitasvir-paritaprevir-ritonavir and dasabuvir.[55] All 60 participants who received treatment achieved an SRV12.

Simeprevir and Sofosbuvir

- **OPTIMIST-1:** In this randomized, phase 3, open-label trial, investigators compared an 8-week versus 12-week regimen of simeprevir plus sofosbuvir in HCV genotype 1, treatment-naïve and treatment-experienced adults without cirrhosis.[34] Overall, participants achieved better SVR12 rates in the 12-week arm (97% [150 of 155]) than in the 8-week arm (83% [128 of 155]). In the treatment-experienced participants, the SVR12 rates with the 12-week regimen were superior to the 8-week regimen (95% versus 77%). This study demonstrates the all-oral 12-week regimen of simeprevir plus sofosbuvir is highly effective and well tolerated in treatment-naïve and treatment-experienced HCV genotype 1 patients without cirrhosis.
- **OPTIMIST-2:** This randomized, phase 3, open-label, single-arm trial examined the effectiveness and safety of a 12-week treatment course with simeprevir plus sofosbuvir in treatment-naïve or treatment-experienced adults with HCV genotype 1 and compensated cirrhosis.[35] Overall, 83% (86 of 103) persons treated with simeprevir plus sofosbuvir achieved an SVR12. Among the treatment-experienced participants, 79% (42 of 53) had an SVR12. In the combined data for the 72 treatment-naïve and treatment-experienced individuals with HCV genotype 1a infection, the SVR12 rates were higher in the group without the baseline Q80K mutation than those with the baseline Q80K mutation (92% versus 74%). This study demonstrates that the all-oral 12-week regimen of simeprevir plus sofosbuvir is moderately effective in HCV treatment-experienced adults with cirrhosis and HCV genotype 1, but individuals with genotype 1a and a baseline Q80K mutation had lower SVR rates.

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.[36] For those participants assigned to sofosbuvir-velpatasvir (n=624), 34% had genotype 1a, 19% had genotype 1b, 19% had compensated cirrhosis, and 28% were treatment-experienced (most of whom had interferon-based therapy; those with prior NS5A or NS5B experience were excluded). Among treatment-experienced participants, the SVR rate was 100% (78/78) in those with genotype 1a infection and 97% (31/32) in those with genotype 1b.[36]

- **POLARIS-2:** In this phase 3, open-labeled trial, adults with chronic HCV genotype 1, 2, 3, or 4 who were naïve to DAA therapy (prior peginterferon and ribavirin allowed) were randomized to either 8 weeks of sofosbuvir-velpatasvir-voxilaprevir or 12 weeks of sofosbuvir-velpatasvir.[37] Among the 941 participants, compensated cirrhosis was present in 18% and HCV genotype 1 in 49%. Sustained virologic response (SVR) occurred in 95% and 98% in sofosbuvir-velpatasvir-voxilaprevir and sofosbuvir-velpatasvir arms respectively. Only 93% of the HCV genotype 1 participants achieved an SVR12 in the 8-week arm (92% among genotype 1a versus 97% among genotype 1b). Notably, SVR occurred in 90% of participants with cirrhosis in the 8-week arm compared with 99% in the 12-week arm. The investigators concluded this study did not establish sofosbuvir-velpatasvir-voxilaprevir for 8 weeks as noninferior to sofosbuvir-velpatasvir for 12 weeks.

Sofosbuvir-Velpatasvir-Voxilaprevir

- **POLARIS-1:** In this phase 3 placebo-controlled trial, investigators enrolled adults with chronic HCV genotypes 1, 2, 3, 4, 5, or 6 who had previously received treatment that included an NS5A inhibitor.[56] Participants with HCV genotype 1 were randomized in a 2:1 ratio to either the active arm, a fixed-dose combination of sofosbuvir-velpatasvir-voxilaprevir once daily for 12 weeks, or placebo arm (that received sofosbuvir-velpatasvir-voxilaprevir after follow-up).[56] Individuals with HCV genotype 2, 3, 4, 5, or 6 were 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 those in the active arm. The overall SVR12 rate was 96% by intent-to-treat analysis, with 6 viral relapses among those who failed sofosbuvir-velpatasvir-voxilaprevir. A SVR12 occurred in 99% of those who were not cirrhotic and 93% of cirrhotic patients. The SVR12 rates were not associated with the presence of NS5A or other resistance-associated substitutions.[56]
- **POLARIS-4:** In this phase 3, active-comparator, open-labeled trial, 314 adults with chronic HCV genotype 1, 2, or 3 with prior direct-acting antiviral therapy without an NS5A inhibitor were randomized to receive either sofosbuvir-velpatasvir-voxilaprevir or sofosbuvir-velpatasvir for 12 weeks.[56] Compensated cirrhosis was present in 46% of participants and prior sofosbuvir exposure in 80%. For participants with HCV genotype 1a, the SVR12 rates were 98% and 89% for the sofosbuvir-velpatasvir-voxilaprevir and sofosbuvir-velpatasvir arms, respectively. For HCV genotype 1b, the SVR12 rates were 96% for the sofosbuvir-velpatasvir-voxilaprevir arm and 95% for the sofosbuvir-velpatasvir arm.[56] Virologic relapse was confirmed at week 4 for 1 sofosbuvir-velpatasvir-voxilaprevir recipient and in 14 participants who received sofosbuvir-velpatasvir (5 of whom had genotype 1a).[56]

Summary Points

- For initial therapy of HCV genotype 1a infection in adults without cirrhosis, four coformulated regimens with similar efficacy are recommended in the AASLD-IDSA guidance: (a) elbasvir-grazoprevir (12 weeks, if no key resistance-associated substitutions are detected on pretreatment NS5A testing); (b) glecaprevir-pibrentasvir (8 weeks); (c) ledipasvir-sofosbuvir (8 or 12 weeks); or (d) sofosbuvir-velpatasvir (12 weeks).
- For initial therapy of HCV genotype 1a infection in adults who have compensated cirrhosis, four 12-week regimens with similar efficacy are recommended: (a) elbasvir-grazoprevir (if no key resistance-associated substitutions are detected on pretreatment NS5A testing); (b) glecaprevir-pibrentasvir; (c) ledipasvir-sofosbuvir; or (d) sofosbuvir-velpatasvir.
- For initial therapy of HCV genotype 1b infection in adults with cirrhosis, the recommended regimens are the same as for noncirrhotic adults with HCV genotype 1a, except that baseline NS5A resistance testing is not required for elbasvir-grazoprevir treatment of persons with HCV genotype 1b, since treatment of HCV genotype 1b with elbasvir-grazoprevir is not significantly impacted by baseline NS5A resistance-associated substitutions.
- For initial therapy of HCV genotype 1b infection in adults with compensated cirrhosis, the recommended regimens are the same as for genotype 1a with compensated cirrhosis, except that baseline NS5A resistance testing is not required for genotype 1b adults treated with elbasvir-grazoprevir, since treatment of HCV genotype 1b with elbasvir-grazoprevir is not significantly impacted by baseline NS5A resistance-associated substitutions.
- For retreatment of HCV genotype 1a infection in adults without cirrhosis who previously failed therapy with peginterferon and ribavirin, the following regimens are recommended: (a) elbasvir-grazoprevir (12 weeks), (b) glecaprevir-pibrentasvir (8 weeks), (c) ledipasvir-sofosbuvir (12 weeks) or (d) sofosbuvir-velpatasvir (12 weeks).
- For retreatment of HCV genotype 1a infection in adults with compensated cirrhosis who previously failed therapy with peginterferon and ribavirin, three 12-week regimens with similar efficacy are recommended: (a) elbasvir-grazoprevir (if no key resistance-associated substitutions are detected on pretreatment NS5A testing); (b) sofosbuvir-velpatasvir; or (c) glecaprevir-pibrentasvir.
- For retreatment of HCV genotype 1b infection in adults without cirrhosis who previously failed therapy with peginterferon and ribavirin, the same 12-week regimens are recommended as for initial treatment in genotype 1b patients without cirrhosis, except that baseline NS5A resistance testing is not required for genotype 1b adults treated with elbasvir-grazoprevir.
- For retreatment of HCV genotype 1b infection in adults with compensated cirrhosis who previously failed therapy with peginterferon and ribavirin, three 12-week regimens are recommended: (a) elbasvir-grazoprevir; (b) sofosbuvir-velpatasvir; or (c) glecaprevir-pibrentasvir.
- In adults with HCV genotype 1a or 1b infection without cirrhosis who failed an NS3 protease-inhibitor (telaprevir, boceprevir or simeprevir) with peginterferon and ribavirin, three 12-week regimens are recommended: (a) ledipasvir-sofosbuvir; (b) sofosbuvir-velpatasvir; or (c) glecaprevir-pibrentasvir. For such patients with compensated cirrhosis, two 12-week regimens are recommended: (a) sofosbuvir-velpatasvir or (b) glecaprevir-pibrentasvir.
- For adults with HCV genotype 1a or 1b infection who previously failed a sofosbuvir-containing regimen (without an NS5A inhibitor), three 12-week regimens are recommended: (a) sofosbuvir-velpatasvir-voxilaprevir for genotype 1a; (b) glecaprevir-pibrentasvir for genotype 1a or 1b; or (c) sofosbuvir-velpatasvir for genotype 1b; these same regimens are recommended for patients without cirrhosis or with compensated cirrhosis.
- For adults with HCV genotype 1 (1a or 1b), with or without compensated cirrhosis, who are DAA-experienced with a prior NS5A-containing regimen, the recommended regimen is sofosbuvir-velpatasvir-voxilaprevir for 12 weeks.

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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 1a: Initial Treatment Treatment-Naïve Genotype 1a Patients Without Cirrhosis

Recommended and alternative regimens listed by evidence level and alphabetically

Recommended for Treatment-Naïve Genotype 1a Patients Without Cirrhosis

Elbasvir-Grazoprevir

Fixed-dose combination of elbasvir (50 mg)/grazoprevir (100 mg) one tablet once daily for 12 weeks

For patients without baseline NS5A resistance-associated substitutions (RASs) for elbasvir; these NS5A RASs include genotype 1a RASs at amino acid positions 28, 30, 31, or 93 known to confer antiviral resistance.

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

Recommended for Treatment-Naïve Genotype 1a Patients Without Cirrhosis

Glecaprevir-Pibrentasvir

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

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 1a Patients Without Cirrhosis

Ledipasvir-Sofosbuvir

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

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

Recommended for Treatment-Naïve Genotype 1a Patients Without Cirrhosis

Ledipasvir-Sofosbuvir

Fixed-dose combination of ledipasvir (90 mg)/sofosbuvir (400 mg) one tablet once daily for 8 weeks

For patients who are non-black, HIV-uninfected, and whose HCV RNA level is <6 million IU/mL.

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

Recommended for Treatment-Naïve Genotype 1a Patients Without Cirrhosis

Sofosbuvir-Velpatasvir

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

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

Alternative for Treatment-Naïve Genotype 1a Patients Without Cirrhosis

Ombitasvir-Paritaprevir-Ritonavir and Dasabuvir

**Fixed-dose combination of ombitasvir (25 mg)/paritaprevir (150 mg)/ritonavir (100 mg) once daily plus dasabuvir (250 mg) twice daily for 12 weeks*

+

Ribavirin

1000 mg/day if <75 kg or 1200 mg/day if ≥75 kg for 12 weeks (the daily dose is given in two divided doses)

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

Note: *Alternatively, the extended-release regimen can be used and this consists of a fixed-dose combination of dasabuvir (600 mg)/ombitasvir (25 mg)/paritaprevir (150 mg)/ritonavir (100 mg). The extended-release regimen is taken as 3 extended release tablets once daily; each fixed-dose tablet contains dasabuvir (200 mg)/ombitasvir (8.33 mg)/paritaprevir (50 mg)/ritonavir (33.33 mg).

Alternative for Treatment-Naïve Genotype 1a Patients Without Cirrhosis

Simeprevir

(150 mg) one tablet once daily for 12 weeks

+

Sofosbuvir

(400 mg) one tablet once daily for 12 weeks

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

Alternative for Treatment-Naïve Genotype 1a Patients Without Cirrhosis

Daclatasvir

**(60 mg) one tablet once daily for 12 weeks*

+

Sofosbuvir

(400 mg) one tablet once daily for 12 weeks

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

Note: *The dose of daclatasvir may need to be increased or decreased when used concomitantly with cytochrome P450 3A/4 inducers and inhibitors, respectively. See the daclatasvir prescribing information for detailed information.

Alternative for Treatment-Naïve Genotype 1a Patients Without Cirrhosis

Elbasvir-Grazoprevir

Fixed-dose combination of elbasvir (50 mg)/grazoprevir (100 mg) one tablet once daily for 16 weeks

+

Ribavirin

1000 mg/day if <75 kg or 1200 mg/day if ≥75 kg for 16 weeks (the daily dose is given in two divided doses)

For patients with baseline NS5A resistance-associated substitutions (RASs) for elbasvir; these NS5A RASs include genotype 1a RASs at amino acid positions 28, 30, 31, or 93 known to confer antiviral resistance.

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

Note: The ribavirin daily dose is given in two divided doses.

Source: AASLD-IDSA. Recommendations for testing, management, and treating hepatitis C. Initial treatment of HCV infection: treatment-naïve genotype 1a without cirrhosis. [[AASLD-IDSA Hepatitis C Guidance](#)] - Accessed April 28, 2019.

Table 2. AASLD-IDSA HCV Guidance for Genotype 1a: Initial Treatment Treatment-Naïve Genotype 1a Patients With Compensated Cirrhosis[^]

Recommended and alternative regimens listed by evidence level and alphabetically

Recommended for Treatment-Naïve Genotype 1a Patients With Compensated Cirrhosis[^]

Elbasvir-Grazoprevir

Fixed-dose combination of elbasvir (50 mg)/grazoprevir (100 mg) one tablet once daily for 12 weeks

For patients without baseline NS5A resistance-associated substitutions (RASs) for elbasvir; these NS5A RASs include genotype 1a RASs at amino acid positions 28, 30, 31, or 93 known to confer antiviral resistance.

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

Recommended for Treatment-Naïve Genotype 1a Patients With Compensated Cirrhosis[^]

Glecaprevir-Pibrentasvir

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

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 1a Patients With Compensated Cirrhosis[^]

Ledipasvir-Sofosbuvir

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

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

Recommended for Treatment-Naïve Genotype 1a Patients With Compensated Cirrhosis[^]

Sofosbuvir-Velpatasvir

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

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

Alternative for Treatment-Naïve Genotype 1a Patients With Compensated Cirrhosis[^]

Elbasvir-Grazoprevir

Fixed-dose combination of elbasvir (50 mg)/grazoprevir (100 mg) one tablet once daily for 16 weeks

+ **Ribavirin**

1000 mg/day if <75 kg or 1200 mg/day if ≥75 kg for 16 weeks (the daily dose is given in two divided doses)

For patients with baseline NS5A resistance-associated substitutions (RASs) for elbasvir; these NS5A RASs include genotype 1a RASs at amino acid positions 28, 30, 31, or 93 known to confer antiviral resistance.

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



^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 1a with compensated cirrhosis. [[AASLD-IDSA Hepatitis C Guidance](#)] - Accessed April 28, 2019.

Table 3. AASLD-IDSA HCV Guidance for Genotype 1b: Initial Treatment Treatment-Naïve Genotype 1b Patients Without Cirrhosis

Recommended and alternative regimens listed by evidence level and alphabetically.

Recommended for Treatment-Naïve Genotype 1b Patients Without Cirrhosis

Elbasvir-Grazoprevir

Fixed-dose combination of elbasvir (50 mg)/grazoprevir (100 mg) one tablet once daily for 12 weeks

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

Recommended for Treatment-Naïve Genotype 1b Patients Without Cirrhosis

Glecaprevir-Pibrentasvir

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

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 1b Patients Without Cirrhosis

Ledipasvir-Sofosbuvir

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

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

Recommended for Treatment-Naïve Genotype 1b Patients Without Cirrhosis

Ledipasvir-Sofosbuvir

Fixed-dose combination of ledipasvir (90 mg)/sofosbuvir (400 mg) one tablet once daily for 8 weeks

For patients who are non-black, HIV-uninfected, and whose HCV RNA level is <6 million IU/mL.

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

Recommended for Treatment-Naïve Genotype 1b Patients Without Cirrhosis

Sofosbuvir-Velpatasvir

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

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

Alternative for Treatment-Naïve Genotype 1b Patients Without Cirrhosis

Ombitasvir-Paritaprevir-Ritonavir and Dasabuvir

**Fixed-dose combination of ombitasvir (25 mg)/paritaprevir (150 mg)/ritonavir (100 mg) once daily plus dasabuvir (250 mg) twice daily for 12 weeks*

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

Note: *Alternatively, the extended-release regimen can be used and this consists of a fixed-dose combination of dasabuvir (600 mg)/ombitasvir (25 mg)/paritaprevir (150 mg)/ritonavir (100 mg). The extended-release regimen is taken as 3 extended release tablets once daily; each fixed-dose tablet contains dasabuvir (200 mg)/ombitasvir (8.33 mg)/paritaprevir (50 mg)/ritonavir (33.33 mg).

Alternative for Treatment-Naïve Genotype 1b Patients Without Cirrhosis

Simeprevir
(150 mg) one tablet once daily for 12 weeks

+

Sofosbuvir
(400 mg) one tablet once daily for 12 weeks

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

Alternative for Treatment-Naïve Genotype 1b Patients Without Cirrhosis

Daclatasvir
*(60 mg) one tablet once daily for 12 weeks

+

Sofosbuvir
(400 mg) one tablet once daily for 12 weeks

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

Note: *The dose of daclatasvir may need to be increased or decreased when used concomitantly with cytochrome P450 3A/4 inducers and inhibitors, respectively. See the daclatasvir prescribing information for detailed information.

Source: AASLD-IDSA. Recommendations for testing, management, and treating hepatitis C. Initial treatment of HCV infection: treatment-naive genotype 1b without cirrhosis. [[AASLD-IDSA Hepatitis C Guidance](#)] - Accessed April 28, 2019.

Table 4. AASLD-IDS A HCV Guidance for Genotype 1b: Initial Treatment Treatment-Naïve Genotype 1b Patients With Compensated Cirrhosis[^]

Recommended and alternative regimens listed by evidence level and alphabetically.

Recommended for Treatment-Naïve Genotype 1b Patients With Compensated Cirrhosis[^]

Elbasvir-Grazoprevir

Fixed-dose combination of elbasvir (50 mg)/grazoprevir (100 mg) one tablet once daily for 12 weeks

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

Recommended for Treatment-Naïve Genotype 1b Patients With Compensated Cirrhosis[^]

Glecaprevir-Pibrentasvir

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

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 1b Patients With Compensated Cirrhosis[^]

Ledipasvir-Sofosbuvir

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

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

Recommended for Treatment-Naïve Genotype 1b Patients With Compensated Cirrhosis[^]

Sofosbuvir-Velpatasvir

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

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

Alternative for Treatment-Naïve Genotype 1b Patients With Compensated Cirrhosis[^]

Ombitasvir-Paritaprevir-Ritonavir and Dasabuvir

##Fixed-dose combination of ombitasvir (25 mg)/paritaprevir (150 mg)/ritonavir (100 mg) once daily plus dasabuvir (250 mg) twice daily for 12 weeks

#See the warning in the product information regarding risk of serious liver injury when using ombitasvir-paritaprevir-ritonavir with or without dasabuvir in patients with cirrhosis.

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

Note: *Alternatively, the extended-release regimen can be used and this consists of a fixed-dose combination of dasabuvir (600 mg)/ombitasvir (25 mg)/paritaprevir (150 mg)/ritonavir (100 mg). The extended-release regimen is taken as 3 extended release tablets once daily; each fixed-dose tablet contains dasabuvir (200 mg)/ombitasvir (8.33 mg)/paritaprevir (50 mg)/ritonavir (33.33 mg).

^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 1b with compensated cirrhosis. [[AASLD-IDSA Hepatitis C Guidance](#)] - Accessed April 28, 2019.

Table 5. AASLD-IDSA HCV Guidance for Genotype 1a: Retreatment Peginterferon plus Ribavirin Treatment-Experienced, Genotype 1a Patients Without Cirrhosis

Recommended and alternative regimens listed by evidence level and alphabetically

Recommended for Peginterferon plus Ribavirin Treatment-Experienced, Genotype 1a Patients Without Cirrhosis

Elbasvir-Grazoprevir

Fixed-dose combination of elbasvir (50 mg)/grazoprevir (100 mg) one tablet once daily for 12 weeks

For patients without baseline NS5A resistance-associated substitutions (RASs) for elbasvir; these NS5A RASs include genotype 1a RASs at amino acid positions 28, 30, 31, or 93 known to confer antiviral resistance.

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

Recommended for Peginterferon plus Ribavirin Treatment-Experienced, Genotype 1a Patients Without Cirrhosis

Glecaprevir-Pibrentasvir

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

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 Peginterferon plus Ribavirin Treatment-Experienced, Genotype 1a Patients Without Cirrhosis

Ledipasvir-Sofosbuvir

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

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

Recommended for Peginterferon plus Ribavirin Treatment-Experienced, Genotype 1a Patients Without Cirrhosis

Sofosbuvir-Velpatasvir

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

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

Alternative for Peginterferon plus Ribavirin Treatment-Experienced, Genotype 1a Patients Without Cirrhosis

Ombitasvir-Paritaprevir-Ritonavir and Dasabuvir

+

Ribavirin

1000 mg if <75 kg or 1200 mg if ≥75 kg for 12 weeks (the daily dose is given in

Fixed-dose combination of ombitasvir (25 mg)/paritaprevir (150 mg)/ritonavir (50 mg) once daily plus dasabuvir (250 mg) twice daily for 12 weeks

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

Note: *Alternatively, the extended-release regimen can be used and this consists of a fixed-dose combination of dasabuvir (600 mg)/ombitasvir (25 mg)/paritaprevir (150 mg)/ritonavir (100 mg). The extended-release regimen is taken as 3 extended release tablets once daily; each fixed-dose tablet contains dasabuvir (200 mg)/ombitasvir (8.33 mg)/paritaprevir (50 mg)/ritonavir (33.33 mg).

Alternative for Peginterferon plus Ribavirin Treatment-Experienced, Genotype 1a Patients Without Cirrhosis

Simeprevir (150 mg) one tablet once daily for 12 weeks + **Sofosbuvir** (400 mg) one tablet once daily for 12 weeks

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

Alternative for Peginterferon plus Ribavirin Treatment-Experienced, Genotype 1a Patients Without Cirrhosis

Daclatasvir *(60 mg) one tablet once daily for 12 weeks + **Sofosbuvir** (400 mg) one tablet once daily for 12 weeks

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

Note: *The dose of daclatasvir may need to be increased or decreased when used concomitantly with cytochrome P450 3A/4 inducers and inhibitors, respectively. See the daclatasvir prescribing information for details.

Alternative for Peginterferon plus Ribavirin Treatment-Experienced, Genotype 1a Patients Without Cirrhosis

Elbasvir-Grazoprevir Fixed-dose combination of elbasvir (50 mg)/grazoprevir (100 mg) one tablet once daily for 16 weeks + **Ribavirin** 1000 mg/day if <75 kg or 1200 mg/day if ≥75 kg for 16 weeks (the daily dose is given in two divided doses)

For patients with baseline NS5A resistance-associated substitutions (RASs) for elbasvir; these NS5A RASs include genotype 1a RASs at amino acid positions 28, 30, 31, or 93 known to confer antiviral resistance.

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

Source: AASLD-IDSAs. Recommendations for testing, management, and treating hepatitis C. Retreatment of persons in whom prior therapy has failed: peginterferon/ribavirin-experienced, genotype 1a patients without cirrhosis. [[AASLD-IDSAs Hepatitis C Guidance](#)] - Accessed April 28, 2019.

Table 6. AASLD-IDSA HCV Guidance for Genotype 1a: Retreatment Peginterferon plus Ribavirin Treatment-Experienced, Genotype 1a Patients With Compensated Cirrhosis[^]

Recommended and alternative regimens listed by evidence level and alphabetically

Recommended for Peginterferon plus Ribavirin Treatment-Experienced, Genotype 1a Patients With Compensated Cirrhosis[^]

Elbasvir-Grazoprevir

Fixed-dose combination of elbasvir (50 mg)/grazoprevir (100 mg) one tablet once daily for 12 weeks

For patients without baseline NS5A resistance-associated substitutions (RASs) for elbasvir; these NS5A RASs include genotype 1a RASs at amino acid positions 28, 30, 31, or 93 known to confer antiviral resistance.

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

Recommended for Peginterferon plus Ribavirin Treatment-Experienced, Genotype 1a Patients With Compensated Cirrhosis[^]

Sofosbuvir-Velpatasvir

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

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

Recommended for Peginterferon plus Ribavirin Treatment-Experienced, Genotype 1a Patients With Compensated Cirrhosis[^]

Glecaprevir-Pibrentasvir

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

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).

Alternative for Peginterferon plus Ribavirin Treatment-Experienced, Genotype 1a Patients With Compensated Cirrhosis[^]

Ledipasvir-Sofosbuvir

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

+ **Ribavirin**

1000 mg/day if <75 kg or 1200 mg/day if ≥75 kg for 12 weeks (the daily dose is given in two divided doses)

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

Alternative for Peginterferon plus Ribavirin Treatment-Experienced, Genotype 1a Patients With Compensated Cirrhosis[^]

Elbasvir-Grazoprevir

Ribavirin

Fixed-dose combination of elbasvir (50 mg)/grazoprevir (100 mg) one tablet once daily for 16 weeks + 1000 mg/day if <75 kg or 1200 mg/day if ≥75 kg for 16 weeks (the daily dose is given in two divided doses)

For patients with baseline NS5A resistance-associated substitutions (RASs) for elbasvir; these NS5A RASs include genotype 1a RASs at amino acid positions 28, 30, 31, or 93 known to confer antiviral resistance.

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

^For treatment of patients with decompensated cirrhosis, see the AASLD-IDS A Guidance: Unique Populations—Patients with Decompensated Cirrhosis.

Source: AASLD-IDS A. Recommendations for testing, management, and treating hepatitis C. Retreatment of persons in whom prior therapy has failed: peginterferon/ribavirin-experienced, genotype 1a patients with compensated cirrhosis. [[AASLD-IDS A Hepatitis C Guidance](#)] - Accessed April 28, 2019.

Table 7. AASLD-IDSA HCV Guidance for Genotype 1b: Retreatment Peginterferon plus Ribavirin-Experienced, Genotype 1b Patients Without Cirrhosis

Recommended and alternative regimens listed by evidence level and alphabetically

Recommended for Peginterferon plus Ribavirin-Experienced, Genotype 1b Patients Without Cirrhosis

Elbasvir-Grazoprevir

Fixed-dose combination of elbasvir (50 mg)/grazoprevir (100 mg) one tablet once daily for 12 weeks

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

Recommended for Peginterferon plus Ribavirin-Experienced, Genotype 1b Patients Without Cirrhosis

Glecaprevir-Pibrentasvir

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

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

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

Recommended for Peginterferon plus Ribavirin-Experienced, Genotype 1b Patients Without Cirrhosis

Ledipasvir-Sofosbuvir

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

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

Recommended for Peginterferon plus Ribavirin-Experienced, Genotype 1b Patients Without Cirrhosis

Sofosbuvir-Velpatasvir

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

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

Alternative for Peginterferon plus Ribavirin-Experienced, Genotype 1b Patients Without Cirrhosis

Ombitasvir-Paritaprevir-Ritonavir and Dasabuvir

**Fixed-dose combination of ombitasvir (25 mg)/paritaprevir (150 mg)/ritonavir (50 mg) once daily plus dasabuvir (250 mg) twice daily for 12 weeks*

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

Note: *Alternatively, the extended-release regimen can be used and this consists of a fixed-dose combination of dasabuvir (600 mg)/ombitasvir (25 mg)/paritaprevir (150 mg)/ritonavir (100 mg). The extended-release regimen is taken as 3 extended release tablets once daily; each fixed-dose tablet contains dasabuvir (200 mg)/ombitasvir (8.33 mg)/paritaprevir (50 mg)/ritonavir (33.33 mg).

Alternative for Peginterferon plus Ribavirin-Experienced, Genotype 1b Patients Without Cirrhosis

Simeprevir
(150 mg) one tablet once daily for 12 weeks + **Sofosbuvir**
(400 mg) one tablet once daily for 12 weeks

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

Alternative for Peginterferon plus Ribavirin-Experienced, Genotype 1b Patients Without Cirrhosis

Daclatasvir
(60 mg) one tablet once daily for 12 weeks* + **Sofosbuvir
(400 mg) one tablet once daily for 12 weeks

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

Note: *The dose of daclatasvir may need to be increased or decreased when used concomitantly with cytochrome P450 3A/4 inducers and inhibitors, respectively. See the daclatasvir prescribing information for details.

Source: AASLD-IDSA. Recommendations for testing, management, and treating hepatitis C. Retreatment of persons in whom prior therapy has failed: peginterferon/ribavirin-experienced, genotype 1b patients without cirrhosis. [[AASLD-IDSA Hepatitis C Guidance](#)] - Accessed April 28, 2019.

Table 8. AASLD-IDS A HCV Guidance for Genotype 1b: Retreatment Peginterferon plus Ribavirin Treatment-Experienced, Genotype 1b Patients With Compensated Cirrhosis ^

Recommended for Peginterferon plus Ribavirin Treatment-Experienced, Genotype 1b Patients With Compensated Cirrhosis ^

Elbasvir-Grazoprevir

Fixed-dose combination of elbasvir (50 mg)/grazoprevir (100 mg) one tablet once daily for 12 weeks

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

Recommended for Peginterferon plus Ribavirin Treatment-Experienced, Genotype 1b Patients With Compensated Cirrhosis ^

Sofosbuvir-Velpatasvir

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

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

Recommended for Peginterferon plus Ribavirin Treatment-Experienced, Genotype 1b Patients With Compensated Cirrhosis ^

Glecaprevir-Pibrentasvir

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

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).

Alternative for Peginterferon plus Ribavirin Treatment-Experienced, Genotype 1b Patients With Compensated Cirrhosis ^

Ledipasvir-Sofosbuvir

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

+

Ribavirin

1000 mg/day if <75 kg or 1200 mg/day if ≥75 kg for 12 weeks (the daily dose is given in two divided doses)

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

Alternative for Peginterferon plus Ribavirin Treatment-Experienced, Genotype 1b Patients With Compensated Cirrhosis ^

Ombitasvir-Paritaprevir-Ritonavir and Dasabuvir

*#*Fixed-dose combination of ombitasvir (25 mg)/paritaprevir (150 mg)/ritonavir (50 mg) once daily plus dasabuvir (250 mg) twice daily for 12 weeks*

#See the warning in the product information regarding risk of serious liver injury when using ombitasvir-paritaprevir-ritonavir plus dasabuvir in patients with cirrhosis

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

Note: *Alternatively, the extended-release regimen can be used and this consists of a fixed-dose combination of dasabuvir (600 mg)/ombitasvir (25 mg)/paritaprevir (150 mg)/ritonavir (100 mg). The

extended-release regimen is taken as 3 extended release tablets once daily; each fixed-dose tablet contains dasabuvir (200 mg)/ombitasvir (8.33 mg)/paritaprevir (50 mg)/ritonavir (33.33 mg).

^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/ribavirin-experienced, genotype 1b with compensated cirrhosis. [[AASLD-IDSA Hepatitis C Guidance](#)] - Accessed April 28, 2019.

Table 9. AASLD-IDSA HCV Guidance for Genotype 1: Retreatment HCV NS3 Protease Inhibitor (Telaprevir, Boceprevir, or Simeprevir) plus Peginterferon and Ribavirin-Experienced, Genotype 1 Patients Without Cirrhosis

Recommended and alternative regimens listed by evidence level and alphabetically

Recommended for HCV NS3 Protease Inhibitor (Telaprevir, Boceprevir, or Simeprevir) plus Peginterferon and Ribavirin-Experienced, Genotype 1 Patients Without Cirrhosis
Ledipasvir-Sofosbuvir

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

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

Recommended for HCV NS3 Protease Inhibitor (Telaprevir, Boceprevir, or Simeprevir) plus Peginterferon and Ribavirin-Experienced, Genotype 1 Patients Without Cirrhosis
Sofosbuvir-Velpatasvir

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

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

Recommended for HCV NS3 Protease Inhibitor (Telaprevir, Boceprevir, or Simeprevir) plus Peginterferon and Ribavirin-Experienced, Genotype 1 Patients Without Cirrhosis
Glecaprevir-Pibrentasvir

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

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).

Alternative for HCV NS3 Protease Inhibitor (Telaprevir, Boceprevir, or Simeprevir) plus Peginterferon and Ribavirin-Experienced, Genotype 1 Patients Without Cirrhosis

Elbasvir-Grazoprevir

Fixed-dose combination of elbasvir (50 mg)/grazoprevir (100 mg) one tablet once daily for 12 weeks

+ **Ribavirin**

1000 mg/day if <75 kg or 1200 mg/day if ≥75 kg for 12 weeks (the daily dose is given in two divided doses)

For all genotype 1b patients, and genotype 1a patients without baseline NS5A resistance-associated substitutions (RASs) for elbasvir; the RASs includes genotype 1a RASs at amino acid positions 28, 30, 31, or 93 known to confer antiviral resistance.

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

Alternative for HCV NS3 Protease Inhibitor (Telaprevir, Boceprevir, or Simeprevir) plus Peginterferon and Ribavirin-Experienced, Genotype 1 Patients Without Cirrhosis

Elbasvir-Grazoprevir

Fixed-dose combination of elbasvir (50 mg)/grazoprevir (100 mg) one tablet once daily for 16 weeks

+

Ribavirin

1000 mg/day if <75 kg or 1200 mg/day if ≥75 kg for 16 weeks (the daily dose is given in two divided doses)

For genotype 1a patients with baseline NS5A resistance-associated substitutions (RASs) for elbasvir; the RASs includes genotype 1a RASs at amino acid positions 28, 30, 31, or 93 known to confer antiviral resistance

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

Source: AASLD-IDSA. Recommendations for testing, management, and treating hepatitis C. Retreatment of persons in whom prior therapy has failed: NS3 protease inhibitor + peginterferon/ribavirin-experienced, genotype 1 patients without cirrhosis. [[AASLD-IDSA Hepatitis C Guidance](#)] - Accessed April 28, 2019.

Table 10. AASLD-IDS A HCV Guidance for Genotype 1: Retreatment HCV NS3 Protease Inhibitor (Telaprevir, Boceprevir, or Simeprevir) plus Peginterferon and Ribavirin-Experienced, Genotype 1 Patients With Compensated Cirrhosis^

Recommended and alternative regimens listed by evidence level and alphabetically

Recommended for HCV NS3 Protease Inhibitor (Telaprevir, Boceprevir, or Simeprevir) plus Peginterferon and Ribavirin-Experienced, Genotype 1 Patients With Compensated Cirrhosis^

Sofosbuvir-Velpatasvir

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

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

Recommended for HCV NS3 Protease Inhibitor (Telaprevir, Boceprevir, or Simeprevir) plus Peginterferon and Ribavirin-Experienced, Genotype 1 Patients With Compensated Cirrhosis^

Glecaprevir-Pibrentasvir

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

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).

Alternative for HCV NS3 Protease Inhibitor (Telaprevir, Boceprevir, or Simeprevir) plus Peginterferon and Ribavirin-Experienced, Genotype 1 Patients With Compensated Cirrhosis^

Ledipasvir-Sofosbuvir

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

+

Ribavirin

1000 mg/day if <75 kg or 1200 mg/day if ≥75 kg for 12 weeks (the daily dose is given in two divided doses)

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

Alternative for HCV NS3 Protease Inhibitor (Telaprevir, Boceprevir, or Simeprevir) plus Peginterferon and Ribavirin-Experienced, Genotype 1 Patients With Compensated Cirrhosis^

Elbasvir-Grazoprevir

Fixed-dose combination of elbasvir (50 mg)/grazoprevir (100 mg) one tablet once daily for 12 weeks

+

Ribavirin

1000 mg/day if <75 kg or 1200 mg/day if ≥75 kg for 12 weeks (the daily dose is given in two divided doses)

For all genotype 1b patients, and genotype 1a patients without baseline NS5A resistance-associated substitutions (RASs) for elbasvir; the RASs includes genotype 1a RASs at amino acid positions 28, 30, 31, or 93 known to confer antiviral resistance.

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

Alternative for HCV NS3 Protease Inhibitor (Telaprevir, Boceprevir, or Simeprevir) plus Peginterferon and Ribavirin-Experienced, Genotype 1 Patients With Compensated Cirrhosis[^]

Elbasvir-Grazoprevir

Fixed-dose combination of elbasvir (50 mg)/grazoprevir (100 mg) one tablet once daily for 16 weeks

+

Ribavirin

1000 mg if <75 kg or 1200 mg if ≥75 kg for 16 weeks (the daily dose is given in two divided doses)

For genotype 1a patients with baseline NS5A resistance-associated substitutions (RASs) for elbasvir; the RASs includes genotype 1a RASs at amino acid positions 28, 30, 31, or 93 known to confer antiviral resistance

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

[^]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: NS3 protease inhibitor + peginterferon/ribavirin-experienced, genotype 1 patients with compensated cirrhosis. [[AASLD-IDSA Hepatitis C Guidance](#)] - Accessed April 28, 2019.

Table 11. AASLD-IDSA HCV Guidance for Genotype 1: Retreatment Non-NS5A Inhibitor, Sofosbuvir-Containing Regimen-Experienced, Genotype 1 Patients Without Cirrhosis

Recommended and alternative regimens listed by evidence level and alphabetically

Recommended for Non-NS5A Inhibitor, Sofosbuvir-Containing Regimen-Experienced, Genotype 1 Patients Without Cirrhosis

Sofosbuvir-Velpatasvir-Voxilaprevir

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

For genotype 1a patients

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

Recommended for Non-NS5A Inhibitor, Sofosbuvir-Containing Regimen-Experienced, Genotype 1 Patients Without Cirrhosis

Glecaprevir-Pibrentasvir

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

Regardless of HCV genotype 1 subtype

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 Non-NS5A Inhibitor, Sofosbuvir-Containing Regimen-Experienced, Genotype 1 Patients Without Cirrhosis

Sofosbuvir-Velpatasvir

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

For genotype 1b patients

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

Alternative for Non-NS5A Inhibitor, Sofosbuvir-Containing Regimen-Experienced, Genotype 1 Patients Without Cirrhosis

Ledipasvir-Sofosbuvir

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

+

Ribavirin

1000 mg/day if <75 kg or 1200 mg/day if ≥75 kg for 12 weeks (the daily dose is given in two divided doses)

Except in simeprevir failures

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

Source: AASLD-IDSA. Recommendations for testing, management, and treating hepatitis C. Retreatment of persons in whom prior therapy has failed: non-NS5A inhibitor, sofosbuvir-containing regimen-experienced, genotype 1 patients without cirrhosis. [[AASLD-IDSA Hepatitis C Guidance](#)] - Accessed April 28, 2019.

Table 12. AASLD-IDSA HCV Guidance for Genotype 1: Retreatment Non-NS5A Inhibitor, Sofosbuvir-Containing Regimen-Experienced, Genotype 1 Patients With Compensated Cirrhosis[^]

Recommended regimens listed by evidence level and alphabetically

Recommended for Non-NS5A Inhibitor, Sofosbuvir-Containing Regimen-Experienced, Genotype 1 Patients With Compensated Cirrhosis[^]

Sofosbuvir-Velpatasvir-Voxilaprevir

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

For genotype 1a patients

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

Recommended for Non-NS5A Inhibitor, Sofosbuvir-Containing Regimen-Experienced, Genotype 1 Patients With Compensated Cirrhosis[^]

Glecaprevir-Pibrentasvir

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

Regardless of genotype 1 subtype

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 Non-NS5A Inhibitor, Sofosbuvir-Containing Regimen-Experienced, Genotype 1 Patients With Compensated Cirrhosis[^]

Sofosbuvir-Velpatasvir

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

For genotype 1b patients

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

[^]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: non-NS5A inhibitor, sofosbuvir-containing regimen-experienced, genotype 1 patients with compensated cirrhosis. [[AASLD-IDSA Hepatitis C Guidance](#)] - Accessed April 28, 2019.

Table 13. AASLD-IDS A HCV Guidance for Genotype 1: Retreatment HCV NS5a Inhibitor DAA-Experienced Genotype 1 Patients, With or Without Compensated Cirrhosis[^]

Recommended for HCV NS5a Inhibitor DAA-Experienced Genotype 1 Patients, With or Without Compensated Cirrhosis[^]

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 I](#), [Level A](#)

Alternative for HCV NS5a Inhibitor DAA-Experienced Genotype 1 Patients, With or Without Compensated Cirrhosis[^]

Glecaprevir-Pibrentasvir

**Fixed-dose combination of glecaprevir (300 mg)/pibrentasvir (120 mg) once daily for 16 weeks*

Except NS3/4 protease inhibitor inclusive DAA combination regimens

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).

[^]For treatment of patients with decompensated cirrhosis, see the AASLD-IDS A Guidance: Unique Populations—Patients with Decompensated Cirrhosis.

Source: AASLD-IDS A. Recommendations for testing, management, and treating hepatitis C. Retreatment of persons in whom prior therapy has failed: NS5A inhibitor DAA-experienced genotype 1 patients. [[AASLD-IDS A Hepatitis C Guidance](#)] - Accessed April 28, 2019.

