Management of Hepatitis C

I. PURPOSE AND OVERVIEW

The Oklahoma Department of Corrections Treatment of Hepatitis C MSRM provides the most current recommendations for the evaluation and treatment of chronic HCV infection in the Oklahoma inmate population. As stated by the American Association for the Study of Liver Diseases (AASLD) and the Infectious Diseases Society of America (IDSA), in collaboration with the International Antiviral Society-USA (IAS-USA), the goal of treatment of HCV infected persons is to reduce all-cause mortality and liver related health adverse consequences, including end-stage liver disease and hepatocellular carcinoma, by the achievement of virologic cure as evidenced by a sustained virologic response.

All inmates with chronic HCV are enrolled in every 6 months chronic clinic provider evaluations at which time indications to treatment are assessed.

At any point during evaluation and treatment, an inmate can decline further evaluation or treatment. Following counseling, a "Waiver of Treatment for Hepatitis C" (DOC 140137.06 C) will be signed.

II. HEPATITIS C PROTOCOL

A. The 5 Stepped Approach to Evaluation and Treatment of HCV:

1. Step 1: Test for HCV infection with anti-HCV (HCV ab) test with reflex to HCV RNA
    a. CPL: 4677
2. Step 2: Perform a baseline evaluation of inmates who are anti-HCV positive
    a. Targeted history and physical examination
    b. CPL Lab tests: CBC (1000), CMP (9179), hepatitis A and hepatitis B serology including HBsAg, anti-HBs, anti-HBc, anti-HAV (CPL 162), and HIV AB (3540) if last HIV screen was > 1 year
    c. Provide HCV Education ("Hepatitis C Frequently Asked Questions" (DOC 140137.06 B).
3. Step 3: Assess for hepatic cirrhosis/decompensation and inclusion criteria for treatment, if HCV RNA is detectable
    a. Assess for hepatic cirrhosis/decompensation: Calculate APRI and FIB-4 scores if no obvious cirrhosis; Calculate CTP score if cirrhosis is known or suspected. PT/INR (1425) will have to be drawn as part of the CTP calculation.
    b. Exclude contraindications
    c. Complete "Case Manager Review/Medical Treatment Evaluation" (DOC 140137.06 A).
4. Step 4: Perform a pretreatment assessment, if inclusion criteria for treatment are met
    a. Obtain additional labs to include: HCV Genotype (CPL 4804), Genotype 1a NS5a resistance (CPL 4795) in those that are Genotype 1a, Fibrosure (CPL 3884) in those with discordant APRI and FIB-4 scores may be indicated and witnessed UDS (CPL 3311) and urine pregnancy test.
    b. Complete "HCV Treatment Work-up Order Note" (DOC 140137.06 L) (to ensure all necessary labs, imaging, and documents are completed and scanned into the EHR.
    c. Complete "Hepatitis C Agreement for Treatment Work-up" (DOC 140137.06 D).
    d. Complete the "HCV Treatment Work-Up Provider Note" (DOC 140137.06 G)
5. Step 5: Monitor patient during and after treatment.
    a. A "Medical Transfer Request" (DOC 140113 E) or expert consultation may be indicated for patients with decompensated cirrhosis or other comorbidities that complicate HCV treatment.

b. Restrict patient to treating facility only while taking the Direct Acting Antiviral medication (DAA)

c. Initiate approved DAA regimen as a Directly Observed Therapy.

d. Schedule Monthly HCV nurse monitoring for the duration of HCV treatment.

(1) Providers evaluate and complete HCV Post Treatment Notes

(2) End of Treatment (EOT); un-restrict patients from facility

(3) 12 Week Post Treatment (assess for sustained virologic response 12 weeks after completion of therapy- SVR12).

(4) 48 Week Post Treatment is indicated only for patients with evidence of cirrhosis (assess for sustained virologic response 48 weeks after completion of therapy- SVR48).

e. Schedule with an On-Site Provider for medication compliance counseling if the patient struggles with pill line medication adherence and providers will complete the "Provider HCV Medication Compliance Counseling Note (DOC 140137.06 P)."

III. SCREENING FOR HCV INFECTION

A. Universal and annual HCV screening

Universal, opt-out HCV screening will be completed on all newly incarcerated inmates. These patients should be provided with educational information regarding prevention and transmission, risk factors, testing, and medical management of HCV infection. "Hepatitis C Frequently Asked Questions" (DOC 140137.06 B).

A single, once in every patient's lifetime screening for HCV infection is recommended for all inmates.

Annual HCV screening is indicated for all with ongoing risk behaviors or exposures. The HCV Screening – Laboratory Testing Results (DOC 140137.6 M) can be utilized to inform patients of his/her HCV screening results.

1. HCV Risk Behaviors and Exposures:

a. Ever injected illegal drugs or shared equipment (including intranasal use of illicit drugs).

b. Received tattoos or body piercings while in jail or prison, or from an unregulated source.

c. Received a blood transfusion or an organ transplant before 1992, received clotting factor transfusion prior to 1987, or received blood from a donor who later tested positive for HCV infection.

d. History of percutaneous exposure to blood.

e. Ever received hemodialysis.

f. Born to a mother who had HCV infection at the time of delivery.

2. HCV Clinical Conditions and birth cohort:

   a. A reported history of HCV infection without prior medical records to confirm the diagnosis.

   b. HIV or chronic hepatitis B virus (HBV) infection.

   c. Cirrhosis.

   d. Chronic hemodialysis – screen alanine aminotransferase (ALT) monthly and anti-HCV semiannually.

   e. Elevated ALT levels of unknown etiology.

   f. Evidence of extrahepatic manifestations of HCV – mixed cryoglobinemia, membranoproliferative glomerulonephritis, porphyria cutanea tarda, vasculitis.

   g. Born between 1945 and 1965.

3. Preferred Screening Test and CPL Code

   The preferred screening test for HCV infection is an immunoassay that measures the presence of antibodies to HCV antigens, with a reflex to HCV RNA (HCV Antibody with reflex Quant, CPL 4677). The presence of HCV RNA indicates active infection, whereas presence of antibodies with negative HCV RNA indicates resolved infection. Providers and nursing staff may utilize the Inmate Notification: Chronic HCV infection inform his/her patients of this laboratory finding and enroll the patient in chronic clinic. The presence of antibodies with negative HCV RNA indicates resolved infection. Providers and nursing staff may utilize the Inmate Hepatitis C Notification (DOC 140137.16 O): Spontaneous Clearance of HCV to inform his/her patients of this laboratory finding. These patients will not need enrolled in HCV Chronic Clinic.

4. Refusal of Testing

   Patients who decline testing should be counseled about and offered HCV testing during periodic preventive health visits.

B. Initial Evaluation in Chronic HCV Infection

Initial evaluation of chronic HCV infection includes a baseline history and physical examination and baseline lab tests. The patient should also be assessed regarding the need for preventive health interventions such as vaccines and screening for other conditions, as well as counseled with information on HCV infection. “Hepatitis C Frequently Asked Questions “(DOC 140137.06 B).

C. Baseline Evaluation

A baseline provider evaluation should be conducted on all inmates who are anti-HCV positive with confirmatory PCR. This evaluation should include the following elements:

1. Targeted History and Physical Examination:

   a. Evaluate for signs and symptoms of liver disease, and determine risk behaviors for acquiring HCV infection (see the section on risk factors under ***screening criteria*** above). Attempt to estimate the earliest possible date of infection, including when risk factors for exposures started and stopped.

   b. Evaluate for other possible causes of liver disease, especially alcoholism, illicit drug use (including marijuana use), nonalcoholic fatty liver disease (NAFLD), nonalcoholic steatohepatitis (NASH), iron overload, and autoimmune hepatitis. Quantify current and/or prior alcohol consumption and illicit drug.

   c. Inquire about prior treatment for HCV infection, specific medications used, dosages and duration of treatment, and outcomes, if known.

2. Laboratory Tests:

   a. CBC (CPL # 1000), CMP (CPL # 9179)

   Unexplained abnormalities should prompt additional diagnostic evaluations, as clinically indicated

   b. Hepatitis A and B serology and HIV screen within the last year – Hepatitis Panel (CPL 162) and HIV antibody (CPL # 3540).

   c. Unless otherwise clinically indicated, testing for other causes of liver disease- e.g., antinuclear antibody (ANA), ferritin, iron saturation, ceruloplasmin- are not routinely ordered in the evaluation of a positive HCV Ab test.

   d. A urine drug screen to determine the need for referral to Substance Abuse Treatment. (CPL # 3311).

3. Preventive Health Measure:

   All inmates who have chronic HCV should assessed for preventive health interventions including the Hepatitis A, Hepatitis B, and Influenza vaccines.

4. Patient Education:

   Inmates diagnosed with chronic HCV infection should be educated regarding the natural history of the infection, potential treatment options, and specific measures to prevent transmitting HCV infection to others (both during incarceration and upon release). “Hepatitis C Frequently Asked Questions” (DOC 140137.06 B)*; Additional Educational Resources:*

   For Patients:

   1. *American Liver Foundation (ALF)* *https://liverfoundation.org/*
   2. *Centers for Disease Control and Prevention (CDC)* https://www.cdc.gov/hepatitis/hcv/cfaq.htm
   3. *Hepatitis Foundation International (HFI)* *https://hepatitisfoundation.org/*

For Providers:

1. *American Association for the Study of Liver Diseases and Infectious Disease Society of America Hepatitis C Guidance http://www.hcvguidelines.org*
2. *Centers for Disease Control and Prevention https://www.cdc.gov/hepatitis/hcv/hcvfaq.htm*
3. *https://www.hepatitisc.uw.edu/*

D. Assess for Hepatic Fibrosis and Cirrhosis

Assessing for fibrosis and cirrhosis is recommended in all patients with HCV infection to determine the need for additional health care interventions. Cirrhosis is a condition of chronic liver disease marked by inflammation, degeneration of hepatocytes, and replacement of fibrotic scar tissue. The natural history of HCV is such that 50-80 % of HCV infections become chronic. Most complications from HCV infection occur in people with cirrhosis.

1. Patients with advanced hepatic fibrosis (stage 3) have a 10 % per year rate of progressing to cirrhosis (stage 4).
2. Those with cirrhosis have a 4 % per year rate of developing decompensated cirrhosis and a 3 % per year rate of developing hepatocellular carcinoma.

Cirrhosis may be diagnosed in several ways:

1. Symptoms and signs that support the diagnosis of cirrhosis may include: Low albumin or platelets, elevated bilirubin or INR or esophageal varices.
2. Decompensated cirrhosis is evidenced by: ruptured varices, ascites, jaundice, hepatic encephalopathy, spontaneous bacterial peritonitis and HCC.
3. The AST-Platelet Ratio Index (APRI) and FIB-4 score are validated non-invasive assessments of hepatic fibrosis and cirrhosis.
   a. The APRI score, a calculation based on results from 2 blood tests- the AST and the platelet count; and the FIB-4 score, a calculation based on results from 3 blood tests, the AST, ALT, platelet count and patients age- are less invasive and less expensive means of assessing fibrosis than a liver biopsy. **If a person is known to have cirrhosis, the APRI and FIB-4 score is irrelevant and unnecessary.**

      https://www.hepatitisc.uw.edu/page/clinical-calculators/apri

      https://www.hepatitisc.uw.edu/page/clinical-calculators/fib-4

   b. **An APRI score of ≥ 2.0 may be used to predict the presence of cirrhosis.** At this cutoff, the APRI score has a sensitivity of 48 %, but a specificity of 94 %, for predicting cirrhosis. Inmates with an APRI score of ≥ 2.0 should have an abdominal ultrasound performed to identify other findings consistent with cirrhosis (see *abdominal imaging studies* bullet below in this list). T**he APRI may also be used to predict the presence of significant fibrosis (stages 2 to 4).** Using a cutoff of ≥ 0.7, the sensitivity is 77 % and specificity is 72 % for significant fibrosis.

c. **A FIB-4 score of ≥3.25 would have a 97% specificity and a positive predictive value of 65% for advanced fibrosis.** A FIB-4 score <1.45 has a negative predictive value of 90% for advanced fibrosis (Ishak fibrosis score 4-6 which includes early bridging fibrosis to cirrhosis). In the patient cohort in which this formula was first validated, at least 70% patients had values <1.45 or >3.25. Authors argued that these individuals could potentially have avoided liver biopsy with an overall accuracy of 86%.

d. **The APRI and FIB-4 scores may be invalidated in cases of splenectomy or thrombocytosis.**

e. **Liver biopsy is no longer required** unless otherwise clinically indicated (e.g., to assess for other of liver diseases that may co-exist with HCV infection, including both hereditary and acquired conditions including: NAFLD, Auto-Immune Hepatitis, Hemochromatosis, or Alpha 1 Anti-trypsin Deficiency) or as per the direction of expert guidance.

f. Although a combination of direct biomarkers and transient elastography is emerging as an accurate non-invasive assessment of fibrosis, the data is insufficient at this time to establish it as the new standard over validated indirect biomarkers such as the APRI and FIB-4 scores (especially when combining these scores).

g. **Abdominal imaging studies** such as ultrasound or CT scan may identify findings consistent with or suggestive of the following: **cirrhosis** (nodular contour of the liver), **portal hypertension** (ascites, splenomegaly, varices), or **hepatocellular carcinoma** (HCC). Abdominal US is routinely performed in cases of known or suspected cirrhosis, and as clinically indicated on a case-by-case basis.

E. Asses for Hepatic Decompensation in those with Cirrhosis

Assessing for hepatic decompensation in those with cirrhosis is important for determining the most appropriate HCV treatment regimen; as the regimen may differ depending on whether the cirrhosis is compensated or decompensated.

The Child-Turcotte-Pugh (CTP) score is a useful tool in determining the severity of cirrhosis and in distinguishing between compensated and decompensated liver disease. Further, this score helps predict overall mortality and serves as a guide for the clinical recommendation for medical parole.

PT/INR (CPL # 1425) will have to be drawn to calculate the CTP score.

https://www.hepatitisc.uw.edu/page/clinical-calculators/ctp

The CTP score includes five parameters (albumin, bilirubin, INR, ascites, and hepatic encephalopathy), each of which is given a score of 1, 2, or 3. The sum of the five scores is the CTP score. A score of 5 to 6 is considered class A (well-compensated disease); 7 to 9 is class B (significant functional compromise); and 10 to 15 is class C (decompensated disease). These classes correlate with one- and two- year patient survival: class A: 100 and 85 percent; class B: 80 and 60 percent; and class C: 45 and 35 percent.

Child-Turcotte-Pugh classification

Parameter		Points assigned	
	1	2	3
Ascites	Absent	Slight	Moderate
Bilirubin	<2 mg/dL (<34.2 micromol/liter)	2 to 3 mg/dL (34.2 to 51.3 micromol/liter)	>3 mg/dL (>51.3 micromol/liter)
Albumin	>3.5 g/dL (35 g/liter)	2.8 to 3.5 g/dL (28 to 35 g/liter)	<2.8 g/dL (<28 g/liter)
Prothrombin time			
Seconds over control	<4	4 to 6	>6
INR	<1.7	1.7 to 2.3	>2.3
Encephalopathy	None	Grade 1 to 2	Grade 3 to 4

Notes:

1. Warfarin anticoagulation will invalidate CTP calculations if the INR is 1.7 or higher.
2. Inmates w/ CTP class C who have survival probability of 6 months or less or severe ADL disability requiring significant ADL caretaker assistance are eligible for submission for consideration of medical parole as long as they are not serving a life sentence.

F. Additional Interventions for Inmates with Cirrhosis

The following recommendations apply to all patients with cirrhosis, whether they have ongoing or resolved HCV infection.

1. Ensure these patients have an active ICD-9 cirrhosis code (571.5)

2. Pneumococcal vaccine: Offer to all HCV-infected inmates with cirrhosis who are 19 through 64 years of age.

3. Hepatocellular Carcinoma screening: Liver ultrasound with AFP is recommended every 6 months for patients with both HCV *and* cirrhosis.

4. Esophageal Varices Screening: Screening for esophageal and gastric varices with esophagogastroduodenoscopy (EGD) is recommended every 2-3 years in those with CTP Class A and B and annually in those with a CTP score class C.

G. Other Healthcare Interventions Recommended for Patients with Cirrhosis may include:

1. Nonselective beta blockers for prevention of variceal bleeding in patients with known esophageal varices.
    a. Propranolol Max dose 80 mg. Initial dose of 20 mg BID
    b. Carvedilol Max dose 6.25 mg BID. Initial dose of 3.125 mg twice daily or 6.25 mg once daily
    c. Titrate according to resting heart rate (target 55 to 60 beats per minute) while maintaining blood pressure (e.g., systolic blood pressure ≥90 mm Hg)
2. Antibiotic prophylaxis if risk factors are present for spontaneous bacterial peritonitis.
3. Optimized diuretic therapy for ascites (maintain ratio of Spironolactone 100 mg: Furosemide 40 mg with max doses of 400:160.) with sodium restriction (< 2 G daily Sodium diet) Fluid restriction only if Na <120 mEq/L or symptomatic.
4. HE prophylaxis: but only with clear history of HE or Clinical evidence of overt HE: based on the combination:
    a. Impaired mental status graded by the West Haven Criteria.
    b. Impaired neuromotor function, such as hyperreflexia, hypertonicity, and asterixis.
5. HE prophylaxis includes: avoiding precipitating factors, Neomycin 250 mg 2-4 times daily (titrate to reduce HE sx's), Xifaxin 550 mg BID, and/or Lactulose 10-30 G PO 2-4 X daily (titrated to 2-3 soft stools daily). Miralax 17 grams daily can also be used in conjunction with these medications. There is no clinical indication for routine ammonia levels.
6. In general, NSAIDs should be avoided in advanced liver disease/cirrhosis, and metformin should be avoided in decompensated cirrhosis. The detailed management of cirrhosis is beyond the scope of this document. Other resources should be consulted for more specific recommendations related to this condition which includes: MSRM 140125-01 (Management of Viral Hepatitis).

H. Anti-HCV Positive Inmates with Non-Detectable Viral loads:

Patients that are found to have positive HCV antibodies with non-detectable viral loads either spontaneously cleared the virus or have been successfully treated. Providers should enter the ICD-9 code (070.70) and change it to “resolved” with an explanation (successful treatment versus spontaneous resolution). They do not require enrollment in Chronic Clinic for HCV as long as they have no evidence of cirrhosis.

Providers and nursing staff may utilize inmate notifications to inform his/her patients of this laboratory finding: "Inmate Hepatitis C Notification." (DOC 140137.06 O): Spontaneous Clearance of HCV or successful treatment in the past. If they have evidence of cirrhosis, they should be enrolled in Cirrhosis Chronic Clinic and require 571.5 (Cirrhosis code) but not 070.70 (HCV code). These patients should be educated regarding re-infection if they engage in high-risk behaviors. They will require repeat screening with HCV Antibody with reflex RNA (CPL 4677) if they do engage in high-risk behaviors.

IV. ASSESSMENT FOR HCV TREATMENT

Assessing for HCV treatment is an important part of the initial evaluation and ongoing management of patients with chronic HCV Infection.

Certain cases of HCV are at a higher risk for complications or disease progression and require more urgent consideration for treatment. Patients with decompensated cirrhosis, HCC, or comorbidities that can complicate HCV treatment may require expert consultation regarding treatment regimens and monitoring.

A. Highest Priority:

1. Moderate Fibrosis to Advanced Hepatic Fibrosis/Cirrhosis
    a. APRI $\geq$ 0.7
    b. FIB-4 $\geq$ 1.45
    c. $\geq$ Stage 2 fibrosis on liver biopsy
    d. Known or suspected cirrhosis (see above section "assessing for hepatic fibrosis/cirrhosis).
2. Hepatocellular Carcinoma (HCC) - on a case-by-case basis as approved and with expert guidance.
3. Comorbid Medical Conditions associated with more rapid progression of fibrosis including:
    a. Coinfection with HIV (with expert guidance).
    b. Coinfection with HBV. HCV has a suppressive effect on HBV. Therefore, if HCV viremia is resolved, patients co-infected with HBV could decompensate. Therefore, unless otherwise directed, HBV must be treated first and patients (although don't require seroconversion) need to have an undetectable HBV viral load prior to the initiation of HCV treatment.
    c. Comorbid Liver Diseases (e.g., autoimmune hepatitis, hemochromatosis, fatty infiltration of the liver, steatohepatitis)
    d. Diabetes Mellitus
    e. Chronic Kidney Disease (CKD) with GFR $\leq$ 59 mL/min
    f. Cryoglobinemia with or without vasculitis

g. Certain types of Lymphomas or hematologic malignancies

h. Porphyria Cutanea Tarda or Lichen Planus

4. Immunosuppressant Medication for a Comorbid Medical Condition: Some immunosuppressant medications may be needed to treat a comorbid medical condition, but are not recommended for use when infection is present. Such cases will be considered for prioritized treatment of HCV on an individual basis.

5. Continuity of Care for Those Already Started on Treatment, including inmates who are newly incarcerated.

6. Patients serving extended sentences, regardless of disease severity or comorbid conditions

B. Additional Criteria for HCV Treatment

Patients being considered for treatment of HCV infection should:

1. Have no contraindications to, or significant drug interactions with any component of the treatment regimen.

2. Not be pregnant, especially for any regimen that would require ribavirin.

3. Have a life expectancy > 18 months.

4. Not have active cancer or be receiving Chemotherapy (Excluding Lymphomas, HCC and certain Hematologic malignancies) unless otherwise indicated following expert consultation.

5. Not have active HBV infection evidenced by: +HBsAg with a positive HBV PCR DNA. As these patients need to have an undetectable HBV viral load prior to the initiation of HCV treatment (as specified above) unless otherwise indicated following expert consultation.

6. Have sufficient time remaining on his/her sentence to complete the full course of treatment and assessment for SVR and demonstrate a willingness and an ability to adhere to a rigorous treatment regimen. Ideally, patients should abstain from high-risk activities while incarcerated.

   a. Patients with insufficient time remaining in ODOC custody, may be considered for treatment if they have access to linkage to care at the time of release.

   b. To prevent HCV re-infection and reduce the risk of progression of liver disease, patients should be provided harm reduction and evidence-based treatment for underlying substance use disorders (SUD) as specified by the AASLD.

V. HCV Treatment Work-Up

Prior to starting treatment for HCV infection, patient education is recommended- including but not limited to: how to take the medication, the importance of adherence, monitoring and follow-up, and potential medication side effects. All of this information can be found at:

https://www.hepatitisc.uw.edu/page/treatment/drugs

https://www.hcvguidelines.org/treatment-naive

https://www.hcvguidelines.org/treatment-experienced

1. Complete the ODOC "Hepatitis C Frequently Asked Questions" (DOC 140137.06 B).
2. Complete the "Hepatitis C Agreement for Treatment Work-up" (DOC 140137.06 D).
3. Complete "Case Manager Review/Medical Treatment Evaluation" (DOC 140137.06 A)
4. Providers complete "HCV Treatment Provider Work-up Order Note" (DOC 140136.06 L) to ensure all necessary labs, imaging, and documents are completed and scanned into the EHR to include:
    a. Labs within 6 months of HCV treatment start date include: CBC, CMP, Witnessed Urine Drug Screen
    b. Urine Pregnancy Test within 30 days
    c. Labs within 1 year of HCV treatment start date include: HCV PCR RNA, Hepatitis profile (that includes HBsAg and anti-HBc), HBV PCR DNA (if either HBsAg or anti-HBc positive), AFP, INR, and TSH, HIV antibody, and HCV genotype, Genotype 1a NS5a resistance in those that are Genotype 1a, Fibrosure may be indicated in those with discordant APRI and FIB-4 scores.
5. Providers complete the full "HCV Treatment Work-Up Clinical Note" (DOC 140137.06 G). This work-up includes:
    a. APRI, FIB-4, and Child Pugh Calculations .
    b. History of Previous HCV treatment to include: treatment regimen, duration, and treatment outcomes.
    c. High Risk Behavior/Mode of Transmission/risks of disease progression
    d. Extra- Hepatic Manifestations of HCV.
    f. Physical Examination findings consistent with cirrhosis.
    g. Hepatic Decompensation history.
    h. HCC screen (includes RUQ/splenic Ultrasound and AFP).

VI. TREATMENT MONITORING

A. **On Treatment Monitoring**:

After initiating Directly Observed Therapy (DOT), Direct Acting Anti-viral (DAA) therapy, the patient is scheduled clinic appointments every 4 weeks during the course of the treatment duration.

The primary focus of these visits is assessment for medication adherence, side effects, and symptoms of hepatic decompensation, and adverse drug reactions.

1. Initiate approved DAA regimen and follow the monitoring schedule
2. Upon receipt at the treating facility, DAAs for HCV treatment will be counted, ensuring the correct number of doses have been received.
3. In addition to monitoring patient compliance via the Electronic Medication Administration Records (eMAR), All DAA HCV medications will be counted in a perpetual inventory system on the "HCV Medication Regimen and Documentation" (DOC 140137.06 H). The "HCV Medication Regimen and Documentation" (DOC 140137.06 H) is to be scanned into the inmates EHR upon completion
4. Once DAA treatment begins, patients will be restricted to his/her current facility, as indicated on the Activity Housing Summary (IHAP) (DOC 140113C). This restriction can be lifted after the patient completes his/her full medication treatment course.
5. If a patient must be transferred to another facility while on HCV medications (DAA treatment) including to another ODOC facility, a hospital, or county jail, the receiving facility must be notified that a patient on HCV medications is transferring to them. The "Medication Chain of Custody" (DOC 140137.06 N) will be completed in its entirety and sent with the transporting officer along with the HCV medication. Both the transferring and receiving facilities will scan this document into the patient's chart. Schedule HCV Monthly nurse monitoring for the duration of HCV treatment. "HCV Monthly Monitoring" (DOC 140137.06 E).
6. A "Medical Transfer Request" (DOC 140113E) or on-site consultation may be indicated for patients with decompensated cirrhosis or other comorbidities that complicate HCV (re)treatment.
7. A CMP will be drawn every 4 weeks during medication treatment for all patients that have a positive baseline HBsAg and/or anti-HBc. HBV PCR DNA will need to be repeated if the AST or ALT doubles.
8. Educate patients regarding the need for strict avoidance of all hepatotoxic substances including illicit drug use and alcohol while on HCV treatment. Patients that failed the pre-treatment urine drug screen or are high risk for ongoing illicit drug use or other hepatotoxicity will be referred to Substance Abuse Treatment and a CMP will be drawn every 4 weeks during medication treatment. A witnessed Urine Drug Screen will need to be repeated if the AST or ALT doubles.
9. Expert Consultation may be indicated in patients with decompensated cirrhosis or other comorbidities that complicate HCV treatment.

B. On-Treatment Direct Acting Antiviral Non-adherence

1. If a patient misses 2 consecutive doses or 4 total doses of medication during treatment, the patient will be scheduled with an on-site provider to address the medication non-adherence. Specifically, the on-site provider will educate the patient that the HCV medication will have to be stopped to protect against the development of drug resistance and lower SVR (cure) rates, which complicates future treatment decisions.

2. The on-site provider will complete the "**Provider HCV Medication Compliance Counseling** "(DOC 140137.6 O) If the patient remains non-compliant with the HCV Medication

2. If the patient remains noncompliant with the HCV Direct Acting Antiviral medication, the patient will be scheduled with the on-site provider again. The on-site provider will complete another "**Provider HCV Medication Compliance Counseling** "(DOC 140137.6 O), and can discontinue the HCV medication.

   a. The HCV Treatment Coordinator and/or Chief Medical Officer will be notified if the HCV Medication is discontinued due to noncompliance.

   b. Package the HCV medication with the ODOC Chain of Custody (DOC140137.6 N) and mail to Dick Conner Correctional Center for the addition of this medication to Stock Supply.

VII. POST TREATMENT MONITORING:

A. After patients complete HCV medications, he/she will be un-restricted from the current (treating) facility, as indicated on the Activity Housing Summary (IHAP) (DOC 140113C). If the patient required a medical transfer for HCV Treatment, a medical transfer back to the pre-treatment facility may be indicated.

B. Providers Complete the "HCV End of Treatment Note" (DOC 140137.06 F) and educate patients on risks of re-infection. Providers may utilize the "Inmate Hepatitis C Notification" (DOC 140137.6 O): HCV End of Treatment if a patient is unable to be scheduled in clinic for follow-up.

C. Schedule HCV Antibody with reflex RNA (CPL 4677) 12 weeks after the completion of HCV treatment and complete the "HCV 12 Week Post Treatment-Assess for Sustained Virologic Response (SVR12) (DOC 140137.06 I). If this HCV RNA is undetectable, it defines a sustained virologic response (SVR12). If the patient does not have cirrhosis (Metavir 4), he or she is considered cured. Change ICD-9 code 070.70 to "resolved" and remove from Chronic Clinic: HCV. Educate patients on behaviors that risk re-infection. Providers may utilize the "Inmate Hepatitis C Notification" (DOC 140137.6 O): HCV SVR12 without cirrhosis if a patient is unable to be scheduled in clinic for follow-up.

D. All patients with advanced fibrosis (Metavir 3) will require lifelong HCC screening with an AFP and RUQ ultrasound every 6 months.

E. All patients with cirrhosis (Metavir 4) will require a second quantitative HCV RNA viral load 1 year after completion of HCV medication (SVR48). Schedule HCV Antibody with reflex RNA (CPL 4677) 48 weeks after the completion of HCV treatment. If this HCV RNA is undetectable, it defines a sustained virologic response (SVR48).

F. Complete the "HCV 48 Week Post Treatment - Assess for Sustained Virologic Response (SVR48)" (DOC 140137.06 J). Educate patients on behaviors that risk re-infection. Change ICD-9 code 070.70 to "resolved." Patient will remain in Chronic Clinic for Cirrhosis and ICD-9 code 571.5 will remain active. These patients will require lifelong HCC screening. Providers may utilize the "Inmate Hepatitis C Notification" (DOC 140137.6 O): HCV SVR 48 if a patient is unable to be scheduled in clinic for follow-up.

G. Recurrent viremia following an SVR may be due to treatment failure (relapse) or reinfection. To help distinguish between the two, an HCV genotype, along with subtyping for genotype 1, should be obtained in an attempt to distinguish treatment relapse from reinfection. Providers must specifically question his/her patient regarding high-risk behaviors during and following HCV treatment. Additionally, medication adherence should be assessed in all patients that have a history of HCV Treatment.

VIII. ONGOING MONITORING

Periodic monitoring is recommended for all those with active infection, including acute HCV infection, HCV treatment relapses or reinfection, and those with chronic HCV infection who are not yet treated or refuse treatment.

A. Chronic Clinic visits every 6 months are indicated for patients without advanced fibrosis, cirrhosis, or complications. This evaluation should include vital signs, a focused review of systems, physical examination, patient education relevant to HCV, and annual lab monitoring including (CBC, CMP, PT/INR and calculation of APRI and FIB-4).

B. For patients with cirrhosis or significant comorbidities, Chronic Clinic assessments are indicated every 6 months along with lab monitoring every 6 months to include: (CBC, PT/INR, CMP, and calculation of CTP score). Patients with advanced fibrosis and cirrhosis require HCC screening to include a Right Upper Quadrant Ultrasound and AFP every 6 months.

C. In cases of acute HCV infection, monitoring for spontaneous clearance of the infection with ALT and quantitative HCV RNA levels (HCV Antibody with reflex RNA, CPL 4677) every 12 weeks, for 12 months, is recommended. If viremia persists after that time, continue to monitor and manage the case as a chronic infection. In most cases of acute HCV infection, treatment may be deferred to allow for spontaneous clearance of viremia. However, in some cases there may be a compelling reason to treat the acute infection in order to prevent severe complications, e.g., HCV infection superimposed on established cirrhosis or advanced fibrosis.

D. For patients that achieve cure following treatment or spontaneous clearance of HCV but continue to engage in high-risk behavior including illicit drug use, prison tattooing, or unprotected sex, screening with HCV Antibody with reflex RNA (CPL 4677) are indicated annually.

IX. SPECIAL CONSIDERATIONS

Some patients may require expert consultation prior to the initiation of HCV treatment.

A. HBV Coinfection

In patients coinfected with HBV and HCV, HBV reactivation may occur during or after treatment with HCV DAAs. Testing for HBV infection – including HBsAg, anti-HBs, and anti-HBc, as well as HBV DNA levels in those with a reactive HBsAg or anti-HBc is recommended for all patients treated with DAAs. If the patient is found to have a negative anti-HBs, he/she should be offered the 3 dose HBV Vaccine Series.

B. **HIV Coinfection**

Currently recommended HCV regimens are equally effective for HCV mono-infection and coinfection with HIV. However, an alternative HCV regimen or an alternative antiretroviral medication regimen may be necessary due to potential drug interactions between the HCV DAAs and certain antiretrovirals.

OUHSC Infectious Disease serves as ODOC's expert guidance via scheduled Telemedicine clinic in patients coinfected with HCV and HIV.

C. **Linkage to Care**

Some patients will have insufficient time remaining on his/her sentence to deliver the full DAA regimen while in our custody. These patients should be linked to community clinics for continuity of care and potential treatment after discharge. Providers should assess these patients for HCV treatment after discharge as part of the "Linkage to Care" (Attachment A). Providers will complete the "HCV Linkage to Care Note" (DOC 140137.06 K). Print the "HCV Linkage to Care Note" (DOC 140137.06 K) along with the "Linkage to Care" (Attachment A) document and issue both to these patients.

D. **Illicit Drug Use**

Some patients continue to use illicit drugs complicating the treatment process including compliance, adverse effects including hepatoxicity during treatment and reinfection risk following successful treatment. These patients benefit from Substance Abuse Treatment before and/or during and after treatment.

Substance Abuse Patient and Provider Education:

For Patients:

- Patient education: Cannabis use disorder (The Basics) attachment
- Patient education: Opioid use disorder (The Basics) attachment
- Stimulant Use Disorder (The Basics) attachment
- Patient education: Substance Use Disorder (The Basics) attachment

For Providers:

- American Society of Addiction Medicine (ASAM)/American Academy of Addiction Psychiatry (AAAP): Clinical practice guideline on the management of stimulant use disorder (2024)
- Substance Abuse and Mental Health Services Administration (SAMHSA): A Treatment Improvement Protocol (TIP) for treatment of stimulant use disorders (2021)

- World Federation of Societies of Biological Psychiatry (WFSBP): Guidelines for the biological treatment of substance use and related disorders, part 2 − Opioid dependence (2011)
- American Society of Addiction Medicine (ASAM): National practice guideline for the treatment of opioid use disorder, focused update (2020)
- US Department of Veterans Affairs (VA)/Department of Defense (DoD): Clinical practice guidelines for the management of substance use disorder (SUD) (2021)
- US Preventive Services Task Force (USPSTF): Final recommendation statement on unhealthy drug use – Screening (2020)
- Substance Abuse and Mental Health Services Administration (SAMHSA): A Treatment Improvement Protocol (TIP) for detoxification and substance abuse treatment (2006, revised 2015)
- American College of Physicians (ACP): Position paper on health and public policy to facilitate effective prevention and treatment of substance use disorders involving illicit and prescription drugs (2017)

X. REFERENCES

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http://hcvguidelines.org/

https://www.hepatitisc.uw.edu/

XI. Action

The chief medical officer will be responsible for compliance with this procedure.

Any exceptions to this procedure will require prior written approval from the director. This procedure will be effective as indicated.

Replaced: Medical Services Resource Manual 140137-06 entitled "Management of Hepatitis C" dated February 2, 2024.

Distribution: Medical Services Resource Manual

Referenced Forms	Title	Located
DOC 140137.06 A	"Case Manager Review/Medical Treatment Evaluation"	Attached
DOC 140137.06 B	"Hepatitis C Frequently Asked Questions"	Attached
DOC 140137.06 C	"Waiver of Treatment for Hepatitis C"	Attached
DOC 140137.06 D	"Hepatitis C Agreement for Treatment Work-Up"	Attached
DOC 140137.06 E	"HCV Monthly Monitoring"	Attached
DOC 140137.06 F	"HCV End of Treatment Note"	Attached
DOC 140137.06 G	"HCV Treatment Work-Up Provider Note"	Attached
DOC 140137.06 H	"HCV Medication Regimen and Documentation"	Attached
DOC 140137.06 I	"HCV 12 Week Post Treatment - Assess for Sustained Virologic Response (SVR12)"	Attached
DOC 140137.6 J	"HCV 48 Week Post Treatment - Assess for Sustained Virologic Response (SVR48)"	Attached
DOC 140137.6 K	"HCV Linkage to Care Note"	Attached
DOC 140137.6 L	"HCV Treatment Work-up Order Note"	Attached
DOC 140137.6 M	"HCV Screening -Laboratory Results"	Attached
DOC 140137.06 N	"Medication Chain of Custody"	Attached
DOC 140137.06 O	"Inmate Hepatitis C Notification"	Attached
DOC 140137.6 P	"Provider HCV Medication Compliance Counseling"	Attached
DOC 140113 E	"Medical Transfer Request"	OP 140113
DOC 140113 C	"Activity Housing Summary (IHAP)"	OP 140113

Referenced Attachments	Title	Location
Attachment A	"Linkage to Care"	Attached
Attachment B	"HCV Link to Care Community Resource"	Attached
Attachment C	"Patient Education: Cannabis Use Disorder (The Basics)"	Attached
Attachment D	"Patient Education: Opioid Use Disorder (The Basics)"	Attached
Attachment E	"Patient Education: Stimulant Use Disorder (The Basics)"	Attached
Attachment F	"Patient Education: Substance Use Disorder (The Basics)"	Attached