Appendix 7 – Management and Recommended Tests for Individuals Already Diagnosed with Viral Hepatitis[1, 2, 3, 4]

Virus	Test	Frequency/Indication
Hepatitis A	Self-limited disease not requiring ongoing serological follow-up.	
Chronic hepatitis B ***Consultation with or referral to a specialist is strongly recommended.*** All patients require a thorough evaluation at baseline to determine the need for treatment.	HBV DNA	Every 6-12 months (every 3-6 months if on treatment).
	ALT	Every 6-12 months (every 3-6 months if on treatment). *AST is not required for routine diagnosis, only when the APRI score is needed to assess fibrosis for treatment.
	HBsAg	Used to assess loss of HBsAg with treatment.
	HBeAg	Could be replaced by HBV DNA. Generally limited for use by specialists to monitor patients on treatment.
	Anti-HBe	
	Non-invasive fibrosis assessment (e.g., Fibroscan®, APRI)	On treatment: consider every 2-3 years. Not on treatment: consider annually.
	Ultrasound (HCC monitoring) Note: serum alpha-fetoprotein (AFP) monitoring is not recommended if ultrasound is available	Every 6 months for the following: • All individuals of any age with cirrhosis • Asian men 40 years and older • Asian women 50 years and older • Persons of African origin aged 20 years or older (higher risk for HCC even in the absence of cirrhosis) • Family history of HCC (starting at age 40 years) • All individuals with HIV co-infection (starting at age 40 years)
	Anti-HBs	If on treatment, consider annually to check for seroconversion.
	Anti-HBc IgM, anti-HBc Total	Not indicated after initial diagnosis.
	Anti-HCV	If anti-HCV negative, annually if there are ongoing acquisition risk factors. If anti-HCV positive, annual HCV RNA if there are ongoing acquisition risk factors.
	Anti-HDV	If starting treatment and resided in an endemic country (Table 1) or prior/current IDU, screen for HDV. Consider repeating if ongoing risks of new infection.
	Note 1: Offer hepatitis A vaccine as appropriate. There are no indications for post-vaccination HAV serology (can be falsely negative) or boosters. In new hepatitis B patients testing through the BCCDC PHL, anti-HAV total is reflexively performed to identify prior hepatitis A immune status and those individuals who would benefit from hepatitis A vaccine.	
	Note 2: HBV antiviral resistance testing may be indicated for patients failing antiviral treatments. ***Requires expertise to accurately interpret. Specialist consultation is strongly recommended.***	

1 This reflects the expert opinion of the working group

2 Coffin CS, et al. (2018). Management of Hepatitis B Virus Infection: 2018 Guidelines from the Canadian Association for the Study of Liver Disease and Association of Medical Microbiology and Infectious Disease Canada. Available from: canlivj.utpjournals.press/doi/full/10.3138/canlivj.2018-0008

3 Shah H, et al (2018). The management of chronic hepatitis C: 2018 guideline update from the Canadian Association for the Study of the liver. Available from: www.cmaj.ca/content/cmaj/190/22/E677.full.pdf

4 Shah H, et al (2018). Update on the management of chronic hepatitis C: 2018 consensus guidelines from the Canadian Association for the Study of the Liver. Available from: www.cmaj.ca/content/cmaj/suppl/2018/05/29/190.22.E677.DC1/170453-guide-1-at.pdf

Management of Chronic Hepatitis C Infection

Ongoing drug and/or alcohol use are *not* contraindications to HCV treatment. HCV treatment should be one part of a comprehensive approach to care, which should aim to address acquisition risk factors, comorbidities, and emphasize principles of harm reduction where appropriate.

The significant advances in being able to cure HCV infection, and control HBV infection, should inform who to test and engage into care. More than 95% of people with chronic HCV infection can now be cured in 8-16 weeks with newer all oral direct-acting antivirals (DAA).[5] Unlike prior interferon/ribavirin treatment, DAA's are very well-tolerated with few side effects. **Anybody known to have HCV infection, but not previously treated and cured, should be recalled and referred for treatment. *Refer to a specialist if a patient has HBV/HCV co-infection, as if*** HCV treatment is indicated, ongoing monitoring and/or treatment for HBV may be recommended to avoid reactivation of HBV infection.

Curing HCV infection reduces morbidity and mortality, and prevents forward transmission (see the Management of chronic hepatitis C: 2018 guideline update from the Canadian Association for the Study of the Liver). Canada has signed onto the World Health Organization targets of hepatitis B and C elimination by 2030.[6] **As of 2018, an estimated 28,607 people in BC living with hepatitis C infection (diagnosed and undiagnosed) remain untreated.**[7] This highlights the importance of engaging those who have already been diagnosed into comprehensive care for hepatitis C treatment.

As of March 2018, PharmaCare registered British Columbians with chronic HCV infection are eligible for publicly-funded HCV treatment through BC's special authority program (see forms to review requirements). Coverage is subject to the rules of a patient's PharmaCare plan, including any deductibles/ ensuring patients are registered.

[5] Krajden M, Cook D, Janjua NZ. Contextualizing Canada's hepatitis C virus epidemic. Can Liver J [Internet]. 2018 Dec 1 [cited 2019 Apr 3]; Available from: https://canlivj.utpjournals.press/doi/abs/10.3138/canlivj.2018-0011

[6] WHO | Combating hepatitis B and C to reach elimination by 2030 [Internet]. WHO. [cited 2019 Apr 3]. Available from: http://www.who.int/hepatitis/publications/hep-elimination-by-2030-brief/en/

[7] Bartlett SR, Yu A, Chapinal N, Rossi C, Butt Z, Wong S, et al. The population level care cascade for hepatitis C in British Columbia, Canada as of 2018: Impact of Direct Acting Antivirals. Liver Int. doi: 10.1111/liv.14227.

Virus	Test	Frequency/Indication
Hepatitis C infection Consult with a specialist as needed. All individuals diagnosed with hepatitis C infection are eligible for treatment, regardless of fibrosis staging.	HCV RNA	• At baseline. • Consider at end-of-treatment (EOT). • 12 weeks after the end of treatment to assess for SVR-12 (sustained virologic response). • If SVR-12 is achieved and there is on-going risk for reinfection, annual HCV RNA testing is recommended. • As of January 13, 2020, the BCCDC PHL reflexively tests for HCV RNA on first time anti-HCV reactive results and previously reactive anti-HCV results, where HCV RNA testing has never been done.
	HCV genotype	• At baseline (this may not be required at baseline in the future with pan genotypic regimens). • If therapy fails. • If subsequent reinfection is suspected.
	CBC, liver enzymes (ALT, AST*, Alk Phos), liver function (bilirubin, INR, albumin), Creatinine, Serum transferrin saturation, IgG	At baseline. ***Consult with a specialist if eGFR < 30 mL/min or elevated IgG.*** *AST is not required for routine diagnosis, only when the APRI score is needed to assess fibrosis for treatment.
	HIV	At baseline. ***Refer to specialist if HIV/HCV co-infected.*** If HIV negative and ongoing risk factors, test every 6-12 months. Offer HIV Pre-exposure Prophylaxis (PrEP) where appropriate.
	HBV screening (HBsAg, anti-HBs, anti-HBc Total)	At baseline. Reflexively tested on all anti-HCV positive specimens performed at the BCCDC PHL. ***Refer to specialist if HBV/HCV co-infected.*** Offer hepatitis B vaccine as appropriate.
	Non-invasive fibrosis assessment (e.g., Fibroscan®, serum-based fibrosis markers such as APRI) to exclude cirrhosis. Ultrasound (a normal U/S result does not exclude cirrhosis).	At baseline. ***Refer to a specialist if showing evidence of cirrhosis (compensated or decompensated) or HCC.***
	HCV resistance testing	Not routinely recommended. Helps guide treatment in those who have previously failed treatment and those with severe liver fibrosis/decompensated liver disease. Refer to the HCV CASL Guidelines for more information. ***Requires expertise to accurately interpret. Specialist consultation is <u>strongly</u> recommended.***
	Note: HAV testing is reflexively done on all anti-HCV positive specimens performed at the BCCDC PHL to identify vaccination status. Offer hepatitis A vaccine as appropriate. There are no indications for HAV post-vaccination serology or boosters.	
Hepatitis D	HDV testing and follow-up care is generally limited to specialists.	
Hepatitis E	HEV testing and follow-up care is generally limited to specialists.	