# SEXUAL HEALTH and HEPATITIS C TESTING, CARE, and TREATMENT

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### **ABOUT THIS FACTSHEET**

This fact sheet is for front-line, outreach staff, public health staff, others providing sexual health care and the communities of gay, bisexual, queer, and other men who have sex with men (gbMSM). In Canada gbMSM are one of the priority populations listed in The Ontario Hepatitis C Elimination Roadmap.

### WHAT IS HEPATITIS C?

Hepatitis C is a disease caused by the hepatitis C virus (HCV). The virus attacks the liver, an organ with over 500 functions, such as making bile for digestion of fats, breaking down drugs for removal from the body, removing waste products, helping support our body's immunity, regulating blood clotting, and regulating blood sugar levels.<sup>1-8</sup> If left untreated over several years, HCV kills and scars most of the liver—a condition called cirrhosis—and may also result in a form of liver cancer called hepatocellular carcinoma (HCC).<sup>1,5,6</sup>

Gay and bisexual men who have sex with men (gbMSM) have relatively high rates of HCV infection and re-infection. As of 2023, 1 in 25 gbMSM in Canada had been infected with HCV in their lifetime.<sup>9,10</sup>

# HOW DO YOU GET HCV?

People mainly get HCV through blood-to-blood contact, 1,5,9-13 but sexual fluids such as semen (cum), pre-ejaculate (precum), vaginal fluids and anal (bum hole) fluids may also transmit the virus as well. 4,9,11-13 In Canada, most new cases of HCV are seen in individuals who share substance (drug) use items, 5,10,13 though exposure to or sharing other objects such as unsterilized tattoo equipment, toothbrushes, razors, anal douches or sex toys can also be dangerous if they are not cleaned and/or disinfected properly. As a rule, the less sharing, the better. 1,9,10,12,13

Pregnant people may also pass HCV to their children during pregnancy or childbirth.<sup>1,5,12,13</sup>

While spontaneous clearance of hepatitis C (without treatment) is possible, and HCV is now a curable infection with antiviral medications, getting HCV again after either case is possible. 1.4,5,9,10

You cannot get HCV by using the same toilet, drinking glasses, or eating utensils, nor by hugging or kissing someone living with HCV, so long as there is no opening where blood can meet an HCV-infected fluid.<sup>12,13</sup>

### WHAT FACTORS INCREASE HEPATITIS C RISK?

The various sexual health and substance use practices of the gbMSM community can affect this population's chances of getting HCV and can even change the speed of the course of the disease—the effects it has on the body—in some cases.

# CERTAIN SEXUAL HEALTH GROUPS ARE AT POTENTIALLY GREATER RISK OF HCV INFECTION: 4,5,9-12,14,15

- Individuals who have multiple sexual partners, both separately and/or in group play
- People living with HIV (PLHIV)
- People living with hepatitis B (caused by the hepatitis B virus [HBV])
- Those taking HIV pre-exposure prophylaxis (PrEP) medication
- People living with an organism or virus which causes mouth, anal or genital sores (see below)

**Table 1.** Some common organisms which can cause sores<sup>16-21</sup>

ORGANISM	SORE DETAILS
Treponema pallidum (causes Syphilis)	One or more firm, round, painless sores in the mouth or anus in primary syphilis
Lymphogranuloma Venereum (LGV) chlamydia (a specific strain)	Many painless oral (mouth), anal, perianal*, or genital sores
Human papillomavirus (HPV)	Genital or perianal* sores (warts) that look like cauliflower; can be painful but are usually painless
Herpes simplex virus	Several painful oral (mouth), anal, perianal*, and/or genital fluid-filled sores
Haemophilus ducreyi (causes Chancroid)	One or more extremely painful genital or perianal sores

<sup>\*</sup>Perianal: around the anus (bum hole)

### PNP WITH DIFFERENT SUBSTANCES AND HOW THEY CAN INCREASE THE CHANCE OF GETTING HCV:4,15

Substance use during sex to enhance pleasure, otherwise known as Party and Play (PnP) or chemsex, can make HCV infection more likely.<sup>5,9,11</sup>

For more on drug information and Party and Play at GMSH refer to **Drug Info**.

Some examples of commonly used drugs and how they can increase HCV transmission risk include the following:

**Table 2.** Commonly used substances and their effects to increase HCV transmission  $risk^{1,4,9,12,15,22-27}$ 

SUBSTANCE	EFFECTS
Methamphetamine (crystal meth or meth)	Because it can be taken in many ways (i.e., injecting in the arm or rectum, snorting, smoking or swallowing), meth can result in damage to the skin, lungs and/or veins.
	With the damage caused by the drug, the threat of infection from sharing equipment such as syringes, cookers, cotton and water (for injection), straws (for snorting) and pipes (for smoking) increases the threat of HCV infection.
	Additionally, methamphetamines may reduce inhibitions and result in certain sexual behaviours (e.g. multiple sexual partners, group sex, fisting, vigorous use of sex toys) that increase risk of acquiring HCV.
Ketamine (K)	Ketamine is used to increase sexual arousal and enhance sexual experiences. Its numbing effects may make you not feel some physical damage done during sex.

# SYMPTOMS OF HEPATITIS C

Most people living with hepatitis C do not notice any symptoms early on, though some can experience some or all of the following: nausea, vomiting, weakness, poor appetite, jaundice (yellowing of the skin and/or eyes), dark-coloured urine (pee), light gray or white stools (poo) and/or pain just below the rib cage on the right side.<sup>1,4,28</sup>

Around 25% of HCV infections will be cleared by the body by six months after getting HCV.<sup>1,5</sup>

As the liver is progressively damaged over many years, scars take the place of healthy cells. When most of the organ is scarred, the result is called cirrhosis. There is very little regular liver left to work normally at this stage and the changes are usually permanent. Symptoms can include, but are not limited to, fluid build-up in the lower torso ("ascites"), blood in the stool and/ or vomit, weight loss, "brain fog," sleep changes, and depression. Individuals with cirrhosis have a higher risk of certain health conditions, including kidney problems, a cancer of the blood called non-Hodgkin's lymphoma and a type of liver cancer called hepatocellular carcinoma (HCC).5,29

Cirrhosis and HCC are the major concerning long-term results of chronic hepatitis C infection and can be fatal.<sup>1,5,28-31</sup>

Factors such as sex assigned at birth, age, and alcohol consumption may speed up or slow down the rate of liver damage.<sup>1,28</sup>

### **TESTING FOR HCV**

HCV testing involves drawing blood for antibody testing. If an individual has the HCV antibody, then HCV RNA (ribonucleic acid) testing—which detects genetic material of the virus—is done to confirm the diagnosis.<sup>28,32,33</sup>

As early as five weeks after getting HCV, antibody testing may find anti-HCV antibodies in the blood, though for some people it may take up to six months. From then on, this test will remain positive for life, even if the virus is cleared or cured by treatment. For this reason, antibody testing is only used for those who have not tested positive for HCV in the past. 1,4,5,32

RNA testing measures the amount of virus in the body and confirms a current HCV infection.<sup>1,3,4,32,33</sup> People with weakened immune systems such as PLHIV may not always have detectable anti-HCV antibody levels, although serial HCV antibody tests will generally pick up infection in those living with HCV; RNA testing would then be used to confirm infection.<sup>1,4,34</sup>

For gbMSM, speak to your health care provider (HCP) when you decide to take an HCV test. These tests can be performed on a recommended schedule (every 12 months, for example, particularly if other risk factors as listed occur prior)—risk-based testing—or any time as needed—one-time testing. Learn more at CATIE and consider including HCV as part of your routine testing schedule.35 Early diagnosis can help limit the disease course of hepatitis C as well as stop the spread of HCV to other people.4,5,10,14,47

### MONITORING LIVER HEALTH

Checking liver health includes blood work—such as AST, ALT and ALP tests—and scans such as ultrasound.<sup>31</sup> For people living with HCV with or without cirrhosis, regular blood testing and scans are done to monitor the extent of damage to the liver over time by the virus.<sup>33,36,39</sup> If the HCV virus is cleared by the body or cured with treatment, usually less monitoring is required, but usually involves at least regular blood testing of the liver enzyme ALT. Similarly, for PLHIV, blood testing helps check if their daily HIV medications are affecting liver function.<sup>37,38</sup>

# TREATMENT AND SEXUAL HEALTH FOR GBMSM

#### **TREATMENT**

Medications called direct-acting antiretrovirals (DAAs) are highly effective drugs used to treat HCV infection<sup>3,23,34</sup> with minimal side-effects.<sup>1-3,10,39</sup> For patients without cirrhosis who have never been treated for HCV, treatment regimens are typically eight to 12 weeks long,<sup>1,2,10,39</sup> after which point DAAs can cure HCV (and RNA testing will be negative) around 95% of the time.<sup>3,39,40</sup>

Treatment is personalized, where HCV genetics, HCV treatment history, HIV status, HBV status, kidney function and other current medicines taken by the patient are all considered before starting therapy. 3,5,39,41-43

All gbMSM clients with chronic HCV should be considered for DAAs, regardless of whether or not there is liver scarring or substance use history.<sup>1,9,39,44</sup>

### INFECTION PREVENTION AND HCV

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Outside of the body, HCV can survive on surfaces infected with blood (e.g., razors, nail clippers) for at least four days; in certain conditions, such as inside of a syringe, HCV can survive for many weeks. Therefore, hygiene is crucial to help lower the chances of infection. 13,45,46

### **BEFORE AND AFTER SEX**

Perform self-checks regularly at home in addition to going for regular screenings for sexually transmitted infections (STIs) with your HCP. Home checks can include checking yourself for signs of STIs (as noted in Table 1), for cuts, bumps, and for potential openings ("ulcers") in areas where you may have sex, such as the bum, penis, scrotum (ball sac), frontal hole, arms, wrists, hands, mouth and more.<sup>4,11</sup> If you see something of which you are unsure, talk to your doctor.

Clean yourself and any items used during sex in-between partner play. 4,14,40
An excellent resource for gbMSM on HCV and sex is at NoMoreC, including cleaning instructions for yourself, sex toys and other sex play equipment. For instance, it has instructions on the top 13 recommendations on cleaning the groin area. For instructions on cleaning the hands, forearms, sex toys and sex equipment, please visit Why disinfection is important. 14,40

### **DURING SEX**

Lowering the spread of HCV is possible through various methods, including barrier use (e.g., condoms), having sex in a lit area, using a lot of lubricant, and only using your own materials and equipment.<sup>4,11-14,22</sup>

Condoms—for penises and sex toys—can be used for anal, frontal hole and vaginal sex protection, while latex or nitrile gloves can act as safeguards when fisting and fingering. Removing and using a new barrier between different partners is advised.<sup>4,9,11,13,14</sup>

Use lots of silicone- or water-based lubricant; do not use spit.<sup>14</sup>

Sex in a well-lit area helps with noticing when someone is bleeding; avoid red light to make this easier. Lubricant turning pink or red can indicate blood.<sup>14</sup>

Avoid sharing sex play items such as bottles, toys and lubricant; bring your own if you are traveling.<sup>14,22</sup>

### **SUBSTANCE USE AND PNP**

Like with materials used during sex, try to keep materials for substance use separate between partners. 14,22

For gbMSM clients who PnP, taking the drug in the bum may be preferred to injecting it in the arm because of potentially fewer skin and vein problems. With the needle taken out, use a lubricated syringe to inject crystals dissolved in sterile water up the bum. This is followed by putting in a vitamin E capsule to promote healing. 22,43 However, there are still risks with this method: the skin on the outside or inside the bum (anal canal) may tear, with an increased risk of STI transmission afterwards, especially if the crystals were not dissolved.<sup>7,14,22,48</sup> As well, the effects of the meth are fast and the possibility of overdose is similar to injecting meth in the arm. 14,22,48

For safer use, and to booty bump better to reduce HCV infection refer to resource at <u>CATIE</u> and <u>San Francisco AIDS</u>
Foundation. 45,48

Sterile water can be bought at stores or made at home by boiling tap water for at least 20 minutes at 121 degrees Celsius in a pressure cooker to kill any organisms which can cause disease.<sup>49</sup>

# SEX, HCV AND STIGMA

For many gbMSM there can be considerable stigma to discuss sex and HCV test. For gbMSM with certain risk factors it is important to talk to your sexual partner(s) about prevention, screening and hygienic practices for HCV and substance use is useful in lowering your chances of getting HCV.<sup>4,9,14,22</sup> When possible, keep a partner's contact details in your phone for at least 6 months just in case you test positive and need to tell them; if you prefer, ask your HCP to help you with speaking with your sexual partner(s).<sup>14,50</sup>

### **SEX POSITIVE CARE**

gbMSM clients should feel empowered by their HCPs through sex-positive messaging to take control of their sexual health. HCP when working together with members of the gbMSM community with past and present experience with HCV and PnP can help bridge knowledge gaps or biases held by certain HCPs as well. Having an open conversation about diverse sexual practices and sexual pleasures, barriers to care, testing practices and level of understanding of both HCV and liver health can improve how your specific needs can be met.<sup>3,5,9-11,13,23,44,50-52</sup>

More helpful sex positive messaging can be found at the GMSH campaign <u>The Sex</u> <u>You Want</u>.<sup>53</sup>

### REFERENCES

- 1. Hepatitis C: for health professionals [Internet]. Government of Canada; 2023 Feb 24 [cited 2024 Jun 07]. Available from: <a href="https://www.canada.ca/en/public-health/services/diseases/hepatitis-c/health-professionals-hepatitis-c.html">hepatitis-c.html</a>
- 2. Hepatitis C virus (HCV): screening and testing for health professionals [Internet]. Government of Canada; 2021 Jun 06 [cited 2024 Jun 07]. Available from: <a href="https://www.canada.ca/en/public-health/services/publications/diseases-conditions/hepatitis-c-screening-testing-health-professionals.html">https://www.canada.ca/en/public-health/services/publications/diseases-conditions/hepatitis-c-screening-testing-health-professionals.html</a>
- 3. Hepatitis C virus pre- and post-test checklists [Internet]. Hepatitis Education Canada; 2014 [cited 2024 Jun 07]. Available from: <a href="https://hepatitiseducation.med.ubc.ca/files/2017/04/Counselling-checklist-Aborig.pdf">https://hepatitiseducation.med.ubc.ca/files/2017/04/Counselling-checklist-Aborig.pdf</a>
- 4. Sexual transmission of hepatitis C: A guide for HIV-positive gay men [Internet]. National Association of County and City Health Officials; [cited 2024 Jun 07]. Available from: <a href="https://www.naccho.org/uploads/downloadable-resources/Sexual-Transmission-of-Hepatitis-C-Project-Inform.pdf">https://www.naccho.org/uploads/downloadable-resources/Sexual-Transmission-of-Hepatitis-C-Project-Inform.pdf</a>
- 5. Intro to hepatitis C [Internet]. Canadian AIDS Treatment Information Exchange; 2019 [cited 2024 Jun 09]. Available from: <a href="https://www.catie.ca/hepatitis-c-an-in-depth-guide/intro-to-hepatitis-c-an-in-depth-guide/intro-depth-guide/intro-depth-guide/intro-depth-guide/intro-depth-gu
- 6. Kalra A, et al. Physiology, liver [Internet]. National Library of Medicine; 2023 May 1 [cited 2024 Jun 13]. Available from: <a href="https://www.ncbi.nlm.nih.gov/books/NBK535438/">https://www.ncbi.nlm.nih.gov/books/NBK535438/</a>
- 7. The liver and its functions [Internet].
  Columbia. 2024 [cited 2024 Jun 27]. Available from: <a href="https://columbiasurgery.org/liver/liver-and-its-functions">https://columbiasurgery.org/liver/liver-and-its-functions</a>
- 8. Liver disease [Internet]. Mayo Clinic. 2024 Feb 13 [cited 2024 Jul 1]. Available from: <a href="https://www.mayoclinic.org/diseases-conditions/liver-problems/symptoms-causes/syc-20374502">https://www.mayoclinic.org/diseases-conditions/liver-problems/symptoms-causes/syc-20374502</a>
- 9. Kushner, R. Can you get hepatitis C by having sex? The sexual transmission of hepatitis C among gay and bisexual men and other men who have sex with men [Internet]. Canadian AIDS Treatment Information Exchange; 2020 Jan 22 [cited 2024 Jun 09]. Available from: https://www.catie.ca/prevention-in-focus/ can-you-get-hepatitis-c-by-having-sex-thesexual-transmission-of-hepatitis-c

- 10. The Ontario hepatitis C elimination roadmap [Internet]. Hepatitis C Elimination Roadmap Ontario; 2023 [cited 2024 Jun 10]. Available from: <a href="https://endhepc.ca/wp-content/uploads/2023/09/Ontario Hepatitis C">https://endhepc.ca/wp-content/uploads/2023/09/Ontario Hepatitis C</a> Elimination Roadmap Full Report.pdf
- 11. Preventing transmission of hepatitis C during sex [Internet]. Canadian AIDS Treatment Information Exchange; 2022 [cited 2024 Jun 11]. Available from: <a href="https://www.catie.ca/hepatitis-c-an-in-depth-guide/safer-sex">https://www.catie.ca/hepatitis-c-an-in-depth-guide/safer-sex</a>
- **12.** Causes [Internet]. National Health Service; 2021 Oct 27 [cited 2024 Jun 16]. Available from: <a href="https://www.nhs.uk/conditions/hepatitis-c/causes/">https://www.nhs.uk/conditions/hepatitis-c/causes/</a>
- 13. How hepatitis C transmission happens [Internet]. Canadian AIDS Treatment Information Exchange; 2019 [cited 2024 Jun 09]. Available from: <a href="https://www.catie.ca/hepatitis-c-an-in-depth-guide/how-hepatitis-c-transmission-happens">https://www.catie.ca/hepatitis-c-an-in-depth-guide/how-hepatitis-c-transmission-happens</a>
- 14. Reduce the risk of transmission [Internet].
  NoMoreC; 2024 [cited 2024 Jun 08]. Available from: <a href="https://nomorec.nl/en/everything-about-hepatitis-c/verklein-de-kans-op-overdracht/">https://nomorec.nl/en/everything-about-hepatitis-c/verklein-de-kans-op-overdracht/</a>
- **15.** Vanhommerig JW, Lambers FAE, Schinkel J, Geskus RB, Arends JE, van de Laar TJW, Lauw FN, Brinkman K, Gras L, Rijnders BJA, van der Meer JTM, Prins M. Open Forum Infect Dis. 2015;2(3):1-11. doi: 10.1093/ofid/ofv115
- 16. Tudor ME, Al Aboud, AM, Leslie SW, Gossman W. Syphilis [Internet]. National Library of Medicine. 2024 Apr 21 [cited 2024 Jun 26]. Available from: <a href="https://www.ncbi.nlm.nih.gov/books/NBK534780/">https://www.ncbi.nlm.nih.gov/books/NBK534780/</a>
- Luria L, Cardoza-Favarato G. Human papillomavirus [Internet]. National Library of Medicine. 2023 Jan 16 [cited 2024 Jun 26]. Available from: <a href="https://www.ncbi.nlm.nih.gov/books/NBK448132/">https://www.ncbi.nlm.nih.gov/books/NBK448132/</a>
- 18. Rawla P, Thandra KC, Limaiem F. Lymphogranuloma venereum [Internet]. National Library of Medicine. 2023 Jul 31 [cited 2024 Jun 28]. Available from: <a href="https://www.ncbi.nlm.nih.gov/books/NBK537362/">https://www.ncbi.nlm.nih.gov/books/NBK537362/</a>
- 19. Saleh D, Yarrarapu SNS, Sharma S. Herpes simplex type 1 [Internet]. National Library of Medicine. 2023 Aug 28 [cited 2024 Jun 28]. Available from: <a href="https://www.ncbi.nlm.nih.gov/books/NBK482197/">https://www.ncbi.nlm.nih.gov/books/NBK482197/</a>

- 20. Matthew Jr J, Sapra A. Herpes simplex type 2 [Internet]. National Library of Medicine. 2024 Mar 13 [cited 2024 Jun 28]. Available from: <a href="https://www.ncbi.nlm.nih.gov/books/NBK554427/">https://www.ncbi.nlm.nih.gov/books/NBK554427/</a>
- 21. Irizarry L, Velasquez J, Wray AA. Chancroid. [Internet]. National Library of Medicine. 2023 May 22 [cited 2024 Jun 28]. Available from: <a href="https://www.ncbi.nlm.nih.gov/books/NBK554427/">https://www.ncbi.nlm.nih.gov/books/NBK554427/</a>
- 22. Blanchard SK. Booty-bumping meth: harm reduction for an under-discussed practice [Internet]. Filter; 2019 Dec 10 [cited 2024 Jun 09]. Available from: <a href="https://filtermag.org/booty-bumping-meth/">https://filtermag.org/booty-bumping-meth/</a>
- 23. Harm reduction and hepatitis C [Internet]. Canadian AIDS Treatment Information Exchange; 2021 [cited 2024 Jun 09]. Available from: <a href="https://www.catie.ca/hepatitis-c-an-in-depth-guide/harm-reduction-and-hepatitis-c-an-in-depth-guide/harm-reduction-an-in-depth-guide/harm-reduction-an-in-depth-guide/harm-reduction-an-in-
- **24.** Apers J, Berghe WV, De Wit S, Kabeya K, Callens S, Buyze J, et al. Risk factors for HCV acquisition among HIV-positive MSM in Belgium. J AIDS. 2015;68(5):585-93
- 25. Urbanus AT, van de Laar TJ, Stolte IG, Schinkel J, Heijman T, Coutinho RA, et al. Hepatitis C virus infections among men who have sex with men: an expanding epidemic. AIDS. 2009;23(12):F1-7. doi: 10.1097/ QAD.0b013e32832e5631
- **26.** Ndimbie OK, Kingsley LA, Nedjar S, Rinaldo CR. Hepatitis C virus infection in a male homosexual cohort: risk factor analysis. Genitourin Med. 1996;72(3):213-6
- 27. Schmidt AJ, Rockstroh JK, Vogel M, An der Heiden M, Baillot A, Krznaric I, et al. Trouble with bleeding: risk factors for acute hepatitis C among HIV-positive gay men from Germany—a case-control study. PLoS ONE. 2011 Mar 8;6(3):e17781
- 28. Signs and symptoms of hepatitis C infection [Internet]. Canadian AIDS Treatment Information Exchange; 2019 [cited 2024 Jun 11]. Available from: <a href="https://www.catie.ca/hepatitis-c-an-in-depth-guide/signs-and-symptoms-of-hepatitis-c-infection">https://www.catie.ca/hepatitis-c-an-in-depth-guide/signs-and-symptoms-of-hepatitis-c-infection</a>
- 29. Sharma B, John S. Hepatic cirrhosis [Internet]. National Library of Medicine. 2022 Oct 31 [cited 2024 Jun 28]. Available from: <a href="https://www.ncbi.nlm.nih.gov/books/NBK482419/">https://www.ncbi.nlm.nih.gov/books/NBK482419/</a>
- Asafo-Agyei KO, Samant H. Hepatocellular carcinoma [Internet]. National Library of Medicine. 2023 Jun 12 [cited 2024 Jun 28]. Available from: <a href="https://www.ncbi.nlm.nih.gov/books/NBK559177/">https://www.ncbi.nlm.nih.gov/books/NBK559177/</a>

- **31.** Desai A, Sandhu S, Lai JP, Singh Sandhu D. Hepatocellular carcinoma in a non-cirrhotic liver: a comprehensive review. World J Hepatol. 2019 Jan 27;11(1):1-18. doi: 10.4254/wjh.v11.i1.1
- 32. How hepatitis C testing works: diagnostic tests [Internet]. Canadian AIDS Treatment Information Exchange; 2021 [cited 2024 Jun 12]. Available from: <a href="https://www.catie.ca/hepatitis-c-an-in-depth-guide/how-hepatitis-c-testing-works-diagnostic-tests">https://www.catie.ca/hepatitis-c-an-in-depth-guide/how-hepatitis-c-testing-works-diagnostic-tests</a>
- **33.** Diagnosis [Internet]. National Health Service; 2021 Oct 27 [cited 2024 Jun 16]. Available from: <a href="https://www.nhs.uk/conditions/hepatitis-c/diagnosis/">https://www.nhs.uk/conditions/hepatitis-c/diagnosis/</a>
- **34.** Thio C L, Nolt K.R, Astemborski J, Vlahov D, Nelson KE, Thomas DL. Screening for Hepatitis C Virus in Human Immunodeficiency Virus-Infected Individuals. J Clin Microbiol. 2000: 38(2): 575-577.doi:10.1128/jcm.38.2.575-577.2000
- 35. Approaches to hepatitis C testing in Canada [Internet]. Canadian AIDS Treatment Information Exchange; 2021 [cited 2024 Jun 12]. Available from: <a href="https://www.catie.ca/hepatitis-c-an-in-depth-guide/approaches-to-hepatitis-c-testing-in-canada">https://www.catie.ca/hepatitis-c-an-in-depth-guide/approaches-to-hepatitis-c-testing-in-canada</a>
- 36. Liver health monitoring tests [Internet].
  Canadian AIDS Treatment Information
  Exchange; 2020 [cited 2024 Jun 13]. Available
  from: <a href="https://www.catie.ca/hepatitis-c-an-in-depth-guide/liver-health-monitoring-tests">https://www.catie.ca/hepatitis-c-an-in-depth-guide/liver-health-monitoring-tests</a>
- 37. Association of abnormal liver function parameters with HIV serostatus and CD4 count in antiretroviral-naïve Rwandan women. AIDS Res Hum Retroviruses. 2015;31(7):723-30. doi: 10.1089/aid.2014.0170
- Lala V, Zubair M, Minter DA. Liver function tests [Internet]. National Library of Medicine. 2023 Jul 30 [cited 2024 Jun 27]. Available from: <a href="https://www.ncbi.nlm.nih.gov/books/NBK482489/">https://www.ncbi.nlm.nih.gov/books/NBK482489/</a>
- 39. Hepatitis C treatment [Internet]. Canadian AIDS Treatment Information Exchange; 2023 [cited 2024 Jun 12]. Available from: <a href="https://www.catie.ca/hepatitis-c-an-in-depth-quide/hepatitis-c-treatment">https://www.catie.ca/hepatitis-c-an-in-depth-quide/hepatitis-c-treatment</a>
- **40.** Why disinfection is important [Internet]. NoMoreC; 2024 [cited 2024 Jun 08]. Available from: <a href="https://nomorec.nl/en/everything-about-hepatitis-c/waarom-desinfectie-belangrijk-is/">https://nomorec.nl/en/everything-about-hepatitis-c/waarom-desinfectie-belangrijk-is/</a>
- 41. Co-infections and co-morbidities with hepatitis C [Internet]. Canadian AIDS Treatment Information Exchange; 2020 [cited 2024 Jun 14]. Available from: <a href="https://www.catie.ca/hepatitis-c-an-in-depth-guide/co-infections-and-co-morbidities-with-hepatitis-c-and-co-morbidities-with-hepatitis-c-and-co-morbidities-with-hepatitis-c-and-co-morbidities-with-hepatitis-c-and-co-morbidities-with-hepatitis-c-and-co-morbidities-with-hepatitis-c-and-co-morbidities-with-hepatitis-c-and-co-morbidities-with-hepatitis-c-and-co-morbidities-with-hepatitis-c-and-co-morbidities-with-hepatitis-c-and-co-morbidities-with-hepatitis-c-and-co-morbidities-with-hepatitis-c-and-co-morbidities-with-hepatitis-c-and-c-and-co-morbidities-with-hepatitis-c-and-c-

- 42. Hepatitis C [Internet]. Cleveland Clinic; 2024 [cited 2024 Jun 17]. Available from: https:// my.clevelandclinic.org/departments/ digestive/medical-professionals/ hepatology/hepatitis-c#difficult-to-treatpopulations-tab
- **43.** Guidelines for the use of antiretroviral agents in adults and adolescents with HIV [Internet]. Clinical Info HIV.gov. 2023 Mar 23 [cited 2024 Jun 27]. Available from: https://clinicalinfo.hiv.gov/en/ guidelines/hiv-clinical-guidelines-adultand-adolescent-arv/coinfections-hepatitisc-virus-hcv#:~:text=Concurrent%20 Treatment%20of%20HIV%20and%20 HCV%20Infections&text=Several%20 ARV%20drugs%20and%20HCV,the%-20drug%E2%80%93drug%20interaction%20 potentialAsdf
- **44.** Supporting people with hepatitis C treatment who are using drugs [Internet]. Canadian AIDS Treatment Information Exchange; 2020 [cited 2024 Jun 14]. Available from: <a href="https://">https://</a> www.catie.ca/hepatitis-c-an-in-depthguide/supporting-people-with-hepatitis-ctreatment-who-are-using-drugs
- **45.** Safer substance use and hepatitis C prevention [Internet]. Canadian AIDS Treatment Information Exchange; 2021 [cited 2024 Jun 11]. Available from: https://www. catie.ca/hepatitis-c-an-in-depth-guide/safersubstance-use-and-hepatitis-c-prevention
- 46. Universal precautions [Internet]. Canadian AIDS Treatment Information Exchange; [cited 2024 Jun 12]. Available from: https://www. catie.ca/hepatitis-c-an-in-depth-guide/ universal-precautions
- **47.** Understanding hepatitis C testing [Internet]. Canadian AIDS Treatment Information Exchange; 2021 [cited 2024 Jun 12]. Available from: https://www.catie.ca/hepatitis-c-anin-depth-guide/understanding-hepatitis-ctesting

- **48.** Prillwitz J. How to booty bump better [Internet]. San Francisco AIDS Foundation; 2018 [cited 2024 Jun 09]. Available from: https://www.sfaf.org/collections/beta/ how-to-booty-bump-better/?utm source=sfaf&utm\_medium=article&utm\_ campaign=butt\_health\_2018&utm\_ content=booty-bump
- **49.** What is sterile water? ReAgent; 2022 Aug 24 [cited 2024 Jul 1]. Available from: https:// www.chemicals.co.uk/blog/what-is-sterilewater#where to buy purified water
- **50.** Considerations for service providers [Internet]. Canadian AIDS Treatment Information Exchange; 2021 [cited 2024] Jun 12]. Available from: https://www. catie.ca/hepatitis-c-an-in-depth-guide/ considerations-for-service-providers
- 51. Künzler-Heule P, Fierz K, Schmidt AJ, Rasi M, Bogdanovic J, Kocher A, Engberg S, Battegay M, Nöstlinger C, Lehner A, Kouyos R, Schmid P, Braun DL, Fehr J, Nicca D. Response to a sexual risk reduction intervention provided in combination with hepatitis C treatment by HIV/HCV co-infected men who have sex with men: a reflexive thematic analysis. BMC Infect Dis. 2021;21(1):319-32. doi: 10.1186/s12879-021-06003-z
- **52.** Getting ready for hepatitis C treatment [Internet]. Canadian AIDS Treatment Information Exchange; 2020 [cited 2024 Jun 13]. Available from: <a href="https://www.catie.ca/">https://www.catie.ca/</a> hepatitis-c-an-in-depth-quide/getting-readyfor-hepatitis-c-treatment
- 53. The sex you want [Internet]. Gay Men's Sexual Health Alliance; 2024 [cited 2024 Jul 17]. Available from: https://thesexyouwant.ca/









