

# Appendix A: Disease-Specific Chapters

**Chapter: Hepatitis C**

Effective: February 2019

# Hepatitis C

Communicable

Virulent

**Health Protection and Promotion Act:  
O. Reg. 135/18 (Designation of Diseases)**

## 1.0 Aetiologic Agent

The hepatitis C virus (HCV) is a small, single-stranded ribonucleic acid (RNA) virus belonging to the genus *Hepacivirus* in the *Flaviviridae* family.<sup>1</sup> At least 6 major genotypes and approximately 100 subtypes exist.<sup>2</sup> Genotype 1 predominates in Canada.<sup>3</sup> There is limited evidence about differences in clinical outcome between the various types, however, differences do exist in responses to antiviral therapy according to HCV genotype.<sup>2</sup>

## 2.0 Case Definition

### 2.1 Surveillance Case Definition

Refer to [Appendix B](#) for Case Definitions.

### 2.2 Outbreak Case Definition

The outbreak case definition varies with the outbreak under investigation. Please refer to the *Infectious Diseases Protocol, 2018* (or as current) for guidance in developing an outbreak case definition as needed.

The outbreak case definitions are established to reflect the disease and circumstances of the outbreak under investigation. The outbreak case definitions should be developed for each individual outbreak based on its characteristics, reviewed during the course of the outbreak, and modified if necessary, to ensure that the majority of cases are captured by the definition. The case definitions should be created in consideration of the outbreak definitions.

Outbreak cases may be classified by levels of probability (*i.e.* confirmed and/or probable).

## 3.0 Identification

### 3.1 Clinical Presentation

Approximately 20% to 30% of acute infections are symptomatic.<sup>2</sup> If symptoms develop the onset is slow and insidious and can include anorexia, vague abdominal discomfort, nausea and vomiting, fatigue and jaundice.<sup>2</sup>

Without treatment, a high percentage (75%-85%) of infected persons develop chronic infection. About 5% to 20% of those chronically infected will develop cirrhosis over a period of 20-30 years, and 1% to 5% will die from consequences of chronic infection (i.e., cirrhosis and hepatocellular carcinoma).<sup>2</sup>

## 3.2 Diagnosis

See [Appendix B](#) for diagnostic criteria relevant to the Case Definitions.

For further information about human diagnostic testing, contact the Public Health Ontario Laboratories or refer to the Public Health Ontario Laboratory Services webpage: <http://www.publichealthontario.ca/en/ServicesAndTools/LaboratoryServices/Pages/default.aspx>

## 4.0 Epidemiology

### 4.1 Occurrence

Worldwide. HCV prevalence is directly related to the prevalence of persons who routinely share injection equipment and to the prevalence of unsafe parenteral practices in health care settings.<sup>2</sup> The World Health Organization (WHO) estimates that in 2015, 71 million persons were living with chronic HCV infection in the world, accounting for 1% of the population. HCV infection is unevenly distributed in the world. The European and Eastern Mediterranean regions are more affected, but there are variations in prevalence across and within countries.<sup>4</sup>

Reported cases of hepatitis C are less likely to be newly acquired and more likely to be cases acquired months or years in the past. Therefore, increasing or decreasing reported rates are more likely to reflect trends in diagnosis and reporting and not necessarily disease acquisition. In Ontario, as of 2018, case classification for hepatitis C will differentiate between cases known to be newly acquired within the past 24 months and cases previously acquired or acquired at an unspecified/unknown time.

Please refer to Public Health Ontario's (PHO) Reportable Disease Trends in Ontario reporting tool and other reports for the most up-to-date information on infectious disease trends in Ontario.

<http://www.publichealthontario.ca/en/DataAndAnalytics/Pages/DataReports.aspx>

For additional national and international epidemiological information, please refer to the Public Health Agency of Canada and WHO.

### 4.2 Reservoir

Humans.<sup>2</sup>

### 4.3 Modes of Transmission

HCV is primarily transmitted by blood-to-blood contact. Parenteral transmission routes include sharing of needles or other injection drug use equipment, exposure to blood

contaminating inadequately sterilized instruments and needles used in medical and dental procedures or other activities that break the skin (e.g., tattooing, ear or body piercing), sharing of personal items such as razors and toothbrushes, and accidental needle-stick exposures among health care workers. Sexual and mother-to-child transmission have both been documented but appear uncommon except for instances of HIV co-infection, especially HIV positive men who have sex with men.<sup>2,3</sup>

#### 4.4 Incubation Period

Ranges from 2 weeks to 6 months, most commonly 6-9 weeks.<sup>2</sup>

#### 4.5 Period of Communicability

Period of communicability is from one or more weeks before onset of the first symptoms and may persist indefinitely among persons with chronic infection.<sup>2</sup> Communicability can be ended with treatment.<sup>3</sup>

HCV can remain infectious on inanimate surfaces for up to 6 weeks.<sup>5</sup>

#### 4.6 Host Susceptibility and Resistance

Individuals who have been successfully treated or have spontaneously cleared HCV are at risk of becoming re-infected.<sup>2</sup> Additionally, some patients may become co-infected (i.e. infected with 2 or more different HCV genotypes at the same time) or super-infected (i.e. a person infected with a different HCV genotype while chronically infected with another HCV genotype).<sup>6</sup>

### 5.0 Reporting Requirements

As per Requirement #3 of the “Reporting of Infectious Diseases” section of the *Infectious Diseases Protocol, 2018* (or as current), the minimum data elements to be reported for each case are specified in the following:

- *Ontario Regulation 569* (Reports) under the *Health Protection and Promotion Act* (HPPA);<sup>7</sup>
- The iPHIS User Guides published by PHO; and
- Bulletins and directives issued by PHO.

Also refer to the *Sexual Health and Sexually Transmitted/Blood-Borne Infections Prevention and Control Protocol, 2018* (or as current).<sup>8</sup>

For additional information, refer to the Quick reference guide: Hepatitis C laboratory and diagnostic testing – iPHIS data entry scenarios (This resource is intended to help boards of health classify cases of hepatitis C and enter information into iPHIS when receiving additional laboratory information during and after a case investigation).<sup>9</sup>

## 6.0 Prevention and Control Measures

### 6.1 Personal Prevention Measures

Measures include:

- Not sharing illicit drugs or drug use equipment, or personal hygiene articles such as tooth brushes and razors;
- Safer sex practices (e.g., using condoms) should be encouraged at all times, especially for sexual partners of HCV-positive persons; and
- Widespread availability of harm reduction strategies such as needle exchange programs, supervised injection services, and substance use treatment services including opioid substitution therapy.

For additional prevention measures refer to the following:

- *Sexual Health and Sexually Transmitted/ Blood-Borne Infections Prevention and Control Protocol, 2018* (or as current).<sup>8</sup>
- *Substance Use Prevention and Harm Reduction Guideline, 2018* (or as current).<sup>10</sup>

For more information, refer to Recommendations for the Public Health Response to Hepatitis C in Ontario.<sup>3</sup>

### 6.2 Infection Prevention and Control Strategies

Strategies include:

- Use of routine practices at all times;
- Single use disposable equipment or adequate sterilization of instruments used in invasive procedures including personal service settings such as piercing and tattooing;
- Appropriate disinfection measures following body fluid spills;
- Occupational exposures should be managed according to the Blood-Borne Diseases Surveillance Protocol for Ontario Hospitals;<sup>11</sup> and
- Widespread access to treatment of hepatitis C infection to decrease the risk of transmission of hepatitis C.

Refer to PHO's website at [www.publichealthontario.ca](http://www.publichealthontario.ca) to search for the most up-to-date information on Infection Prevention and Control.

### 6.3 Management of Cases

In addition to the requirements set out in the Requirement #2 of the "Management of Infectious Diseases – Sporadic Cases" and "Investigation and Management of Infectious Diseases Outbreaks" sections of the *Infectious Diseases Protocol, 2018* (or as current), the board of health shall investigate cases to determine the source of infection. Refer to Section 5: Reporting Requirements above for relevant data to be collected during case investigation.

Case management may vary based on whether an individual has a newly acquired HCV infection or if the HCV infection was previously acquired or acquired at an unspecified/unknown time and whether the individual's infection status is identified as infectious, resolved or unknown.

Newly acquired cases, regardless of RNA status, are a priority for follow up and counselling:

- Currently infectious cases (i.e., RNA positive cases) are also a priority for follow-up;
- RNA negative cases who are previously acquired / unknown are of lower priority unless they are known by the board of health to have ongoing high risk activities; and
- Individuals who have an unknown RNA status should receive complete follow up and counselling as if they are RNA positive as the board of health may have only one opportunity to follow up with the case; they should be encouraged and supported to obtain RNA testing.

General principles of case management include the following:

- Ensure anti-HCV positive individuals are tested for HCV RNA;<sup>3</sup>
- Ensure HCV cases are aware not to donate blood or blood products;<sup>3</sup>
- Ensure that people with hepatitis C are tested for hepatitis B and HIV and as appropriate, other STIs;
- Advise physicians about the availability of hepatitis A and B vaccines at no cost for persons with chronic liver disease including those with hepatitis C;
- Some regulatory professional colleges have developed policies addressing members who are infected with blood-borne viruses. Health care professionals licenced by these regulatory colleges, who are infected with hepatitis C must be aware of and follow the requirements of their regulatory college; and
- Provide education and counselling about: not sharing illicit drugs or drug use equipment and personal hygiene equipment; harm reduction services; safer sex practices; alcohol and medication use; treatment availability etc., as well as information about community support agencies and health care services.

For management of cases refer to the *Sexual Health and Sexually Transmitted Infections/Blood Borne Infections Protocol, 2018* (or as current).

For more information regarding case management refer to the following:

- Case investigation form: Hepatitis C (This form is designed to support public health unit staff as they collect information on hepatitis C cases and contacts).<sup>12</sup>
- Quick reference guide: Hepatitis C case and contact follow up (This guide provides boards of health with support for case and contact follow up based on the updated components of the case definition).<sup>13</sup>

## 6.4 Management of Contacts

Contact notification is recommended for cases who are RNA positive, RNA unknown or cases who are newly acquired. Contact notification can be completed by cases, health

care providers or public health, depending on local resources and capacity. The responsibility for completing contact tracing and contact notification should be clear (e.g., whether public health staff, health care provider, and/or case is assuming responsibility).

The purpose of contact notification includes the following:

- Notification of the contact of the potential exposure;
- Providing the contact with general information on hepatitis C; and
- Providing the contact with information on testing resources.

When contact notification is undertaken by the case, the above information can be passed on to the case to provide to contacts.

Contacts to be considered for notification should include household and intimate contacts who are likely to have blood-to-blood exposure to the case, including:

- Individuals with whom the case has shared drug equipment;
- Individuals with whom they have shared other personal-use items such as razors and toothbrushes;
- Sexual partners with known high risk sexual behaviour involving blood-to-blood contact and long term sexual partners; and
- Others with a potential exposure to the case's blood.

The timeframe for contact follow up includes:

- Outer limit to identify contacts is onset of risk behaviour or previous negative antibody result (whichever is more recent); and
- If onset of risk behaviour is more than 24 months prior to diagnosis in cases who are "previously acquired/unspecified, RNA positive or RNA unknown", focus on most recent contacts and expand based on capacity/resources.

For management of contacts refer to the *Sexual Health and Sexually Transmitted Infections/Blood Borne Infections Protocol, 2018* (or as current).

For more information regarding management of contacts refer to the following:

- Case investigation form: Hepatitis C (This form is designed to support board of health staff as they collect information on hepatitis C cases and contacts).<sup>12</sup>
- Quick reference guide: Hepatitis C case and contact follow up (This guide provides boards of health with support for case and contact follow up based on the updated components of the case definition).<sup>13</sup>

## 6.5 Management of Outbreaks

Please see the *Infectious Diseases Protocol, 2018* (or as current) for the public health management of outbreaks or clusters in order to identify the source of illness, manage the outbreak and limit secondary spread.

An outbreak is defined as the occurrence of two or more cases of hepatitis C linked by time or a common exposure source or setting.

## 7.0 References

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12. Ontario Agency for Health Protection and Promotion (Public Health Ontario). Case Investigation Form: Hepatitis C. Toronto, ON: Queen's Printer for Ontario; 2018. Available from: <https://www.publichealthontario.ca/en/BrowseByTopic/InfectiousDiseases/Pages/IDLandingPages/Hepatitis-C.aspx>
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## 8.0 Document History

**Table 1: History of Revisions**

Revision Date	Document Section	Description of Revisions
January 2018	General	New template. Section 9.0 Document History added.
January 2018	2.2 Outbreak Case Definition	First paragraph added: “provincial surveillance case definition and the following criteria”
January 2018	3.1 Clinical Presentation	First paragraph added: “Approximately 20% to 30% of acute infections are symptomatic.” Second paragraph added: “Without treatment”, and updated percentage of infected persons that develop chronic infection.
January 2018	3.2 Diagnosis	First paragraph added: “ <b>for diagnostic criteria relevant to the Case Definitions.</b> ” Addition of second paragraph.
January 2018	4.1 Occurrence	First paragraph, entire section revised. Addition of second paragraph.
January 2018	4.3 Modes of Transmission	First paragraph revised. Addition of second paragraph.

<b>Revision Date</b>	<b>Document Section</b>	<b>Description of Revisions</b>
January 2018	4.5 Period of Communicability	Entire section revised.
January 2018	4.6 Host Susceptibility and Resistance	Entire section revised.
January 2018	5.1 To local Board of Health	Entire section revised.
January 2018	5.2 To the Ministry of Health and Long-Term Care (the ministry) or Public Health Ontario (PHO), as specified by the ministry	Sub-section heading changed from: "To Public Health Division (PHD)" to "To the Ministry of Health and Long-Term Care (the ministry) or Public Health Ontario (PHO), as specified by the ministry." Third paragraph, bullets 2 and 3 changed from: "Ministry" to "PHO." Addition of reference materials to consult for additional information.
January 2018	6.1 Personal Prevention Measures	First paragraph revised. Addition of reference materials to consult for additional information.
January 2018	6.2 Infection Prevention and Control Strategies	Entire section revised.
January 2018	6.3 Management of Cases	Entire section revised.
January 2018	6.4 Management of Contacts	Entire section added.
January 2018	6.5 Management of Outbreaks	Entire section revised.
January 2018	7.0 References	Updated.
January 2018	8.0 Additional Resources	Updated.
January 2018	General	Revisions made throughout to support the regulation changes, including management of contacts.

<b>Revision Date</b>	<b>Document Section</b>	<b>Description of Revisions</b>
February 2019	General	Minor revisions were made to support the regulation change to Diseases of Public Health Significance. Common text included in all Disease Specific chapters: Surveillance Case Definition, Outbreak Case Definition, Diagnosis, Reporting Requirements, Management of Cases, and Management of Outbreaks. The epidemiology section and references were updated.
February 2019	3.1 Clinical Presentation	Second paragraph addition: "About 5% to 20% of those chronically infected will develop cirrhosis..."
February 2019	4.1 Occurrence	Added first paragraph. Second paragraph deleted: "Hepatitis C is reported more often among men than women."
February 2019	4.3 Modes of Transmission	Entire section revised.
February 2019	4.5 Period of Communicability	Entire section revised.

