

Appendix A: Disease-Specific Chapters

Chapter: Hemorrhagic fevers, including: i) Ebola virus disease; ii) Marburg virus disease, and iii) Other viral causes

Hemorrhagic fevers, including: i) Ebola virus disease; ii) Marburg virus disease, and iii) Other viral causes

- Communicable
 Virulent

Health Protection and Promotion Act, Section 1 (1)

**Health Protection and Promotion Act:
Ontario Regulation 558/91 – Specification of Communicable Diseases**

**Health Protection and Promotion Act:
Ontario Regulation 559/91 – Specification of Reportable Diseases**

1) Aetiologic Agent:	Infectious agents are Virions which are members of the Filoviridae family; the Ebola and Marburg viruses are antigenetically distinct; in Africa, 3 different subtypes of the Ebola virus have been associated with human illness (1).
2) Case Definition:	
Surveillance Case Definition	See Appendix B
Outbreak Case Definition	<p>The outbreak case definition varies with the outbreak under investigation. Consideration should be given to the following in establishing an outbreak case definition:</p> <ol style="list-style-type: none">1. Clinical, laboratory and/or epidemiological criteria2. A time frame for occurrence3. A geographic location(s) or place(s) where cases live or became ill/exposed4. Special attributes of cases (e.g. age, underlying conditions) <p>Cases should also be classified by levels of probability (i.e. confirmed, probable or suspect).</p>
3) Identification:	
Clinical Presentation	<p>Sudden onset of fever, malaise, myalgia and headache, followed by pharyngitis, vomiting, diarrhea and maculopapular rash (1).</p> <p>In severe and fatal forms, the hemorrhagic diathesis is often accompanied by hepatic damage, renal failure, CNS involvement and terminal shock with multi-organ dysfunction (1).</p>
Diagnosis	See Appendix B Note:

	<p>Diagnosis is usually through a combination of laboratory tests (on blood samples, tissue samples or post-mortem biopsies) including assays detecting antigen or RNA and antibody IgM or IgG, ELISA antigen detection or virus isolation (1).</p> <p>Any testing related to suspected VHF should be carried out under level 4 containment facilities (NML) due to issues of safety, security, expertise, and personnel vaccination.</p> <p>Refer to the Ontario VHF Contingency Plan, 2002 for specific information on diagnostic testing.</p>
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4) Epidemiology:

Occurrence	Viral hemorrhagic fevers are not endemic to Ontario and to date no cases have been reported.
Reservoir	<p>Unknown for Ebola and Marburg infections. In Africa, human index cases have been linked to monkeys, chimpanzees, gorillas, duikers, and porcupines and other animals found dead in the rain forests (1).</p> <p>For Dengue fever, the viruses are maintained in a human/Aedes aegypti mosquito cycle in tropical urban centres; a monkey/ mosquito cycle may serve as a reservoir in the forests of south-eastern Asia and Western Africa (1).</p>
Modes of Transmission	<p>For Ebola and Marburg, person to person transmission occurs by direct contact with infected blood, secretions organs or semen. Risk is highest during the late stages of illness when the infected person is vomiting, having diarrhea or haemorrhaging. Risk during the incubation period is low (1).</p> <p>Nosocomial infections have been frequent; virtually all Ebola (Zaire, now Democratic Republic of Congo) patients who acquired infection from contaminated syringes and needles have died (1).</p> <p>For Dengue, bite of infective mosquitoes, principally Aedes. Aegypti (similar to the malaria cycle) (1).</p>
Incubation Period	<p>Ebola and Marburg virus diseases: Usually 2 to 21 days (1).</p> <p>Dengue: From 3-14 days, commonly 4-7 days (1).</p>
Period of Communicability	<p>As long as blood and secretions contain virus. Ebola virus was isolated from seminal fluid on the 61st day after onset of illness in a laboratory acquired case (1).</p> <p>For dengue fever, no direct person to person spread; persons are infective for mosquitoes from shortly before the febrile period to the end there of, usually 3-5 days. The mosquito becomes infective 8-12 days after the viraemic blood-meal and remains so for life (1).</p>
Susceptibility and Resistance	All ages are susceptible (1). Recovery from infection with one

	serotype provides lifelong homologous immunity but only short-term protection against other serotypes and may exacerbate disease upon subsequent infections (1).
5) Reporting Requirements:	
To local Board of Health	Suspect and confirmed cases of hemorrhagic fever shall be reported immediately to the medical officer of health by persons required to do so under the <i>Health Protection and Promotion Act</i> , R.S.O. 1990.
To Public Health Division (PHD)	<p>The board of health shall notify the PHD of the MOHLTC immediately by phone upon receiving report.</p> <p>Report only case classifications specified in the case definition to PHD.</p> <p>Cases shall be reported using the integrated Public Health Information System (iPHIS), or any other method specified by the Ministry within five (5) business days of receipt of initial notification as per <i>iPHIS Bulletin</i> Number 17: Timely Entry of Cases (2).</p> <p>The minimum data elements to be reported for each case is specified in the following:</p> <ul style="list-style-type: none"> • <i>Ontario Regulation 569</i> (Reports) under the Health Protection and Promotion Act (HPPA); • The disease-specific User Guides published by the Ministry, and • Bulletins and directives issued by the Ministry.
6) Prevention and Control Measures:	
Personal Prevention Measures	Refer to the Ontario VHF Contingency Plan, 2002.
Infection Prevention and Control Strategies	Public Health response will be under the direction of provincial and federal jurisdiction.
Management of Cases	Refer to the Ontario VHF Contingency Plan, 2002.
Management of Contacts	Refer to the Ontario VHF Contingency Plan 2002.
Management of Outbreaks	<p>Given the severity and rarity of hemorrhagic fevers, a single confirmed case constitutes an outbreak.</p> <p>Refer to the Ontario VHF Contingency Plan.</p>
7) References	<p>(1) Heymann D, editor. Control of communicable diseases manual. 18th ed. Washington: American Public Health Association; 2004.</p> <p>(2) Ministry of Health and Long-Term Care. Timely entry of cases.</p>

	iPHIS Bulletin. 2007 May 11;17.
8) Additional Resources	<p>Ministry of Health and Long-Term Care. Viral hemorrhagic fevers (VHFs): contingency plan – Ontario. Toronto: Queen’s Printer for Ontario; 2002. Available from http://www.health.gov.on.ca/english/providers/program/emu/vhf/vhf_plan.pdf.</p> <p><i>Health Protection and Promotion Act</i>, R.S.O. 1990, c. H.7. Available from http://www.e-laws.gov.on.ca/html/statutes/english/elaws_statutes_90h07_e.htm.</p>

