BCCDC Non-certified Practice Decision Support Tool:
Herpes Simplex Virus (HSV)

Scope

RNs must consult or refer to a physician (MD) or nurse practitioner (NP) for a prescription if required.

Etiology

The herpes simplex virus (HSV type 1 or 2) is a member of the *Herpesviridae* family.

Epidemiology

HSV is a common sexually transmitted infection in British Columbia. Epidemiological data for HSV is limited. It is estimated that over 70% of the global population has an HSV infection.

HSV-1 and HSV-2 can infect both oral and genital tissue. Most genital infections are caused by HSV-2 but HSV-1 produces a clinically similar disease and the incidence of HSV-1 genital disease is increasing.

Transmission

- contact with lesions, oral or genital secretions, or mucosal surfaces contacting HSV
- close skin-to-skin contact
- transmission is more likely to occur:
    - during primary infections
    - from penis to the vagina, during vaginal sex
    - HIV/HSV-2 co-infection can increase HSV-2 genital shedding and transmissibility
- autoinoculation can occur
- transmission can occur during asymptomatic periods of shedding

Vertical:

- greatest risk to infant if primary infection is acquired in third trimester

Clinical Presentation

The clinical presentation of HSV infection is independent of HSV type and can be highly variable with stages of infection ranging from asymptomatic to severe symptoms, as described below.

Stage	Current Infection	Pre-existing Antibodies	Description	Symptoms
Primary Infection	HSV-1	None	• incubation period: 4 days (range 2 - 14 days) • symptoms last 2 - 4 weeks • HSV IgG antibodies begin to appear 12 - 16 weeks after initial infection, and are lifelong	when symptoms present, more likely to be severe • common genital symptoms: ○ lesions begin as vesicles, rupture, and then ulcerate ○ intense pain ○ itching ○ dysuria ○ lymphadenopathy ○ vaginal discharge • common oral symptoms: ○ lesions begin as vesicles, rupture, and then ulcerate on lips or in mouth ○ sore throat ○ pharyngitis ○ lymphadenopathy • systemic symptoms: ○ fever ○ headache ○ nausea ○ myalgia ○ malaise
	HSV-2	None		
Non-primary infection	HSV-1	HSV-2	• first clinically evident infection where there are pre-existing HSV antibodies of the opposite HSV type, from a prior infection • fewer lesions that can last up to 15 days	• pre-existing antibodies provide some protection • variable presentation, difficult to distinguish from primary infection • systematic symptoms less likely • complications are uncommon
	HSV-2	HSV-1		

Stage	Current Infection	Pre-existing Antibodies	Description	Symptoms

Recurrent Infection	HSV-1	HSV-1	• where there are pre-existing HSV antibodies of the same type from a prior infection
			• more likely to recur:
			  • during 1st year
			  • if HSV-2 infection
			  • if immunosuppressed
			• frequency decreases over time
			• lesions typically last 7 days
				• variable presentation. Lesions are typically less severe and occur on one side, but can be asymptomatic
				• systematic symptoms less likely
				• atypical vaginal lesions can present as fissures or irritation
				• most individuals will have prodromal symptoms hours to days before lesions appear: local burning tingling, pruritus
				• some may notice triggers (e.g., menses, emotional/physical stress, sexual intercourse, medications, sun exposure)

	HSV-2	HSV-2		

Physical Assessment

In the presence of extensive or painful lesions, internal exams can be deferred. An assessment may include examination of the:

- external genitalia, and where appropriate, internal genitalia and anus/rectum (also see Proctitis DST) for lesions
- inguinal nodes: may be swollen and tender
- genitalia may be edematous and irritated
- cervix: may see lesions and/or discharge
- penile urethra: may see discharge, usually clear and mucoid
- vagina: may see increased discharge (purulent or bloody if primary infection)
- oral: may see severe pharyngitis, and/or painful lesions in mouth or on lips

Extra-genital and oral lesions can also present and contribute to HSV transmission.

Diagnostic and Screening Tests

HSV PCR Swab

HSV PCR is the preferred test for HSV, as it is site- and type-specific. Refer to the eLab Handbook for complete specimen collection and processing information.

- if a vesicle is present, unroof it and collect fluid with swab

Complete full STI screen, including Trepenema pallidum (TP) PCR for syphilis, CT NAAT swab for Lymphogranulaoma venereum (LGV), where clinically and epidemiologically appropriate.

*Consider Mpox NAAT where clinically and epidemiologically appropriate

Serology

Serologic HSV testing is only recommended where results will be clinically meaningful in preventing serious adverse outcomes (e.g., pregnancy). In all other settings, potential psychosocial harms should be carefully considered prior to testing. It is **not** recommended as a part of routine STI screening.

It is limited in its ability to guide sexual health decision making, in that it does not inform:

- the location of asymptomatic infections on the body
- where prior infections came from or when they occurred
- the likelihood of future symptoms or recurrent infection(s)

Positive results may reflect subclinical infections from prior sexual or childhood exposures (i.e., “cold sores”) and not of a current presentation. This can lead to significant anxiety, stigma, and negative effects on relationships, and has not been shown to disrupt HSV transmission or to change sexual behaviour.

HSV IgG testing is no longer performed by the BCCDC Public Health Laboratory (PHL).

HSV type-specific serology (TSS)

HSV TSS measures type- specific HSV IgG antibodies against HSV-1 and -2. It is **not** recommended as a part of routine STI screening, or if someone is asymptomatic, and does not meet the testing criteria recommended below. If HSV TSS is recommended, thorough pre-/post-test counselling is advised.

HSV TSS may be ordered through the BCCDC PHL if one of the following conditions is met:

- Based on clinical judgment. Some examples where TSS may be indicated include:

- atypical or recurrent genital disease, where prior testing (including HSV PCR swab) has not provided a definitive clinical diagnosis
- serodiscordant couples, where one partner has had HSV diagnosed and typed

Management

Diagnosis and Clinical Evaluation

Diagnosis can be made based on clinical presentation and physical assessment, although lab confirmation is recommended. If no prior history of HSV infection, a clinical diagnosis can be made until test results are available.

Notes:

- A negative HSV PCR result does not necessarily rule-out genital herpes, as viral shedding may have been too low at the time of testing to detect.
- If a swab result reports varicella zoster virus (VZV)/shingles, consult with and/or refer to a MD/NP for clinical assessment and treatment. See the BCCDC Communicable Disease Manual, Chapter 1, Varicella Zoster (2018) for further information.

Consultation and Referral

Consult with or refer to a MD or NP all individuals who:

- are pregnant or breast-/chest-feeding
- have severe, extensive outbreaks
- are experiencing any complications listed under the “Potential Complications” section
- require an antiviral prescription
- have an HSV PCR result that indicates VZV

Treatment

HSV is treated with antiviral medication. Treatment is not curative but is safe, effective, and can significantly improve quality of life for those living with HSV infection.

Treatment is not covered by the provincial formulary. Consult with or refer to a MD or NP for a prescription where appropriate.

RNs must refer all individuals who are requiring or requesting treatment to a MD/NP. RNs may counsel on treatment options.

Treatment	Notes
Treatment	
episodic: client-initiated treatment lasting 1-5 days	• most effective if started immediately upon first prodromal symptoms or within a day of onset of lesions • more convenient and cost-effective than suppressive therapy
suppressive: daily therapy	• if the individual is experiencing significant clinical or psychological morbidity
topical	• topical preparations should not be used in isolation, as they do not address any potential systemic symptoms and are generally not thought to be as effective • topical anesthetics or corticosteroids may be helpful adjunct therapies to help provide temporary relief
No Treatment	

• may be appropriate if:
  ○ no or few recurrences after primary infection
  ○ recurrences have minimal or no impact on quality of life
  ○ poor experience with side effects
• cost or daily dosing considerations do not outweigh the clinical benefits	

Benefits of treatment are variable, but can include:

- reduced forward transmission during both asymptomatic and symptomatic periods, by decreasing HSV viral load, although subclinical shedding is still possible while on treatment
- reduction of outbreak severity and duration by 1 to 2 days on average
- decrease in the experience of pain and number of lesions

The decision to take treatment (episodic or suppressive) is individual and based on the following considerations:

- type of infection (primary, nonprimary, or recurrent)
  - if a primary infection (viral load is thought to be highest at this time), treating before PCR results are available could potentially help decrease risk of transmission and duration of symptoms
- frequency of recurrences
- severity of symptoms

- psychological morbidity
- desire to take daily therapy, balancing cost, dosing, and side effects, with transmission risks
- serodiscordant partner(s)

Monitoring and Follow-up

- **Repeat testing:** No
- **Test-of-cure (TOC):** No
- **Follow-up:** return for re-assessment after 1 week if symptoms are unresolved. Sometimes treatment duration may need to be extended

Partner Notification

- **Reportable: No**
- **Trace-back period: N/A**
- **Recommended partner follow-up:** counsel on the importance of informing current and future partners to prevent further sexual and perinatal transmission, providing ongoing support, education and counselling as appropriate

Potential Complications

More common in those with a primary HSV infection:

- proctitis
- cervicitis
- urethritis
- superinfection of lesions (often with candida)
- extragenital lesions
- aseptic meningitis
- sacral radiculitis (acute urinary retention with loss of sacral sensation)
- herpetic keratitis
- neuropathic bladder

Rare, but severe HSV disease can also lead to disseminated infection, pneumonitis, fulminant hepatitis or CNS involvement.

Additional Education

- although the majority of transmission appears to occur during asymptomatic periods (more common in the first 12 months after initial infection), to abstain from sex during outbreaks
- seek care if they are still experiencing symptoms after one week, treatment duration may need to be extended
- suppressive treatment can help reduce transmission risks in serodiscordant relationships
- hand hygiene and not touching/picking at lesions, as this could lead to autoinoculation at other sites
- where to access mental health resources to help process the diagnosis as needed
- condoms provide some protection against HSV, but transmission may still occur as condoms may not fully cover affected areas
- comfort measures to help with pain or discomfort, including:
  - analgesics
  - warm bath, gently pat dry or use a blow dryer on a cool setting
  - wear loose fitting clothing made of breathable materials such as cotton
  - applying an ice-pack wrapped in a clean covering
  - if dysuric, urinate in warm water or pour water over the genitals while urinating, and drink plenty of fluids to dilute urine
- treatment options: no Treatment, episodic treatment or suppressive treatment

HSV diagnosis can cause a great deal of distress for many people. For further information and counselling strategies, refer to:

- BCCDC's Herpes: A Health Care Provider's Guide
- BCCDC's Herpes: A Patient's Guide
- BCCDC's Herpes Simplex Virus handout
- PHAC's Genital Herpes Counselling Tool
- Standard Education for Sexually Transmitted & Blood-Borne Infection (STBBI)

References

Albrecht, M. A. (2022a). Epidemiology, clinical manifestations, and diagnosis of genital herpes simplex virus infection (M. S. Hirsch & J. Mitty, Eds.). *UpToDate*. Retrieved September 29, 2023, from https://www.uptodate.com/contents/epidemiology-clinical-manifestations-and-diagnosis-of-genital-herpes-simplex-virus-infection?source=history_widget

Albrecht, M. A. (2022b). Treatment of genital herpes simplex virus infection (M. S. Hirsch & J. Mitty, Eds.). *UpToDate*. Retrieved September 29, 2023, from https://www.uptodate.com/contents/treatment-of-genital-herpes-simplex-virus-infection?source=history_widget

Australian STI Management Guidelines for Use in Primary Care. (2021, November 9). *Genital herpes simplex virus (HSV)*. STI Guidelines Australia. https://sti.guidelines.org.au/sexually-transmissible-infections/genital-herpes-simplex-virus-hsv

Centers for Disease Control and Prevention. (2022, September 21). *Herpes - sti treatment guidelines*. https://www.cdc.gov/std/treatment-guidelines/herpes.htm

Cole, S. (2020). Herpes simplex virus. *Nursing Clinics of North America*, *55*(3), 337–345. https://doi.org/10.1016/j.cnur.2020.05.004

Government of Western Australia Department of Health. (n.d.). *Genital herpes*. Silver Book. https://www.health.wa.gov.au/Silver-book/Non-notifiable-infections/Genital-herpes

Johnston, C., & Wald, A. (2023). Epidemiology, clinical manifestations, and diagnosis of herpes simplex virus type 1 infection (M. S. Hirsch & J. Mitty, Eds.). *UpToDate*. Retrieved September 29, 2023, from https://www.uptodate.com/contents/epidemiology-clinical-manifestations-and-diagnosis-of-herpes-simplex-virus-type-1-infection?source=history_widget

Mangione, C. M., Barry, M. J., Nicholson, W. K., Cabana, M., Chelmow, D., Coker, T., Davis, E. M., Donahue, K. E., Jaén, C., Kubik, M., Li, L., Ogedegbe, G., Pbert, L., Ruiz, J. M., Stevermer, J., & Wong, J. B. (2023). Serologic screening for genital herpes infection. *JAMA*, *329*(6), 502. https://doi.org/10.1001/jama.2023.0057

Mathew Jr, J., & Sara, A. (2023). Herpes simplex type 2. *StatsPearls*. https://www.ncbi.nlm.nih.gov/books/NBK554427/

Omarova, S., Cannon, A., Weiss, W., Bruccoleri, A., & Puccio, J. (2022). Genital herpes simplex virus—an updated review. *Advances in Pediatrics*, *69*(1), 149–162. https://doi.org/10.1016/j.yapd.2022.03.010

Public Health Agency of Canada. (2021). *Genital herpes guide: Key information and resources*. Government of Canada. https://www.canada.ca/en/public-health/services/infectious-diseases/sexual-health-sexually-transmitted-infections/canadian-guidelines/herpes-simplex-virus.html

Saleh, D., Yarrarapu, S. S., & Sharma, S. (2023). Herpes simplex type 1. *StatPearls*. https://www.ncbi.nlm.nih.gov/books/NBK482197/

Tuddenham, S., Hamill, M. M., & Ghanem, K. G. (2022). Diagnosis and treatment of sexually transmitted infections. *JAMA*, *327*(2), 161. https://doi.org/10.1001/jama.2021.23487

Van Wagoner, N., Qushair, F., & Johnston, C. (2023). Genital herpes infection. *Infectious Disease Clinics of North America*, *37*(2), 351–367. https://doi.org/10.1016/j.idc.2023.02.011

Wald, A., & Johnston, C. (2022). Treatment and prevention of herpes simplex virus type 1 in immunocompetent adolescents and adults (M. S. Hirsch & J. Mitty, Eds.). *UpToDate*. Retrieved September 29, 2023, from https://www.uptodate.com/contents/treatment-and-prevention-of-herpes-simplex-virus-type-1-in-immunocompetent-adolescents-and-adults?source=history_widget

Whitley, R. J., & Hook, E. W. (2022). Shedding patterns of genital herpes simplex virus infections. *JAMA*, *328*(17), 1710. https://doi.org/10.1001/jama.2022.18930

World Health Organization. (2023, April 5). *Herpes simplex virus*. https://www.who.int/news-room/fact-sheets/detail/herpes-simplex-virus0

Yuan, L., Xia, D., Zhou, Q., Xu, W., Xu, S., & Yin, Y. (2023). An evaluation of a multiplex pcr assay for the detection of treponema pallidum, hsv-1, and hsv-2. *Diagnostic Microbiology and Infectious Disease*, *106*(3), 115958. https://doi.org/10.1016/j.diagmicrobio.2023.115958