

- Remains stable in aerosol form; highly contagious between people; can remain viable for as long as 24 hours.

6. *What factors made it possible for smallpox to be successfully eliminated?*

- An inexpensive, stable, and effective vaccine (cowpox virus) was available.
- Smallpox is specific to humans; there are no animal reservoirs.
- The severe, obvious signs and symptoms of smallpox enable quick and accurate diagnosis and quarantine.
- There are no asymptomatic cases.
- The virus is spread only via close contact.

7. *Describe latency as it occurs in herpesviruses. What conditions can trigger reactivation?*

- *Latency* refers to viruses remaining inactive inside infected cells, often for years.
- They may reactivate as a result of aging, chemotherapy, immunosuppression, or physical and emotional stress.
- Additionally, some latent herpesviruses insert into a host's chromosomes, where they may induce cancer.

8. *Describe the diseases caused by HH-1 and HH-2, including signs, symptoms, treatment, and prevention.*

- **Oral herpes** is caused by human herpesvirus 1. Infection exhibits itchy, painful skin lesions on the lips known as cold sores or fever blisters with Flu-like signs and symptoms. Can be controlled with chemotherapeutic agents such as valaciclovir.
- **Genital herpes** is caused by HH-1 or, more commonly, by HH-2. Infection by HHV-2 results in painful lesions on the genitalia and occasionally oral lesions. The disease can be controlled with chemotherapeutic agents such as valaciclovir. The only true prevention is sexual abstinence or faithfulness between uninfected partners.
- **Ocular herpes** is caused by HH-1 and is characterized by a gritty pain, sensitivity to light and conjunctivitis in only one eye (recurrent infections may cause blindness). Can be controlled with trifluridine or trifluridine.
- **Whitlow** may occur if HH-1 or HH-2 enters a cut in the skin of a finger. Health care workers should always wear latex gloves when they are treating a patient with herpes simplex.
- **Neonatal herpes** is usually caused by HH-2. Prevention includes delivery of the baby by cesarean section if genital lesions are present. The mother may also take acyclovir towards the end of her pregnancy.

9. *Compare and contrast the two diseases caused by VZV (a.k.a. Varicella-Zoster virus).*

- **Chickenpox** occurs when the virus enters the body through the respiratory tract or eyes, replicates, and travels throughout the body via blood. Symptoms include malaise, fever, and skin lesions.
- **Shingles** occurs when the dormant virus is reactivated due to stress, aging, or immune suppression. This causes the virus to travel down the nerve they inhabit and results in a painful rash towards the distal end of the nerve. Unlike chickenpox, the rash occurs only in the proximity associated with an infected nerve.

10. *Know that HH-4 (a.k.a. Epstein-Barr virus) is the cause of infectious mononucleosis.*

11. *Describe four kinds of warts associated with papillomavirus infections.*

- **Seed warts** are found on the fingers or toes; **plantar warts** are found in the soles of the feet; **flat warts** are found on the face, trunk, knees, or elbows; **genital warts** are found on the external genitalia.

12. *Describe the epidemiology, pathogenesis, diagnosis, treatment, and prevention of genital warts.*

- Genital warts are symptoms of a disease caused by human papillomavirus (HPV).
- Spreads via direct contact, sex, fomites, and differing locations on a person by a process called *autoinoculation*.
- The diagnosis of genital warts is most often made visually, but may require confirmation by DNA probing.
- Prevention includes abstinence, mutual monogamy, and Gardasil (a vaccine).
- Treatments include surgery, freezing, cauterization (burning), laser, or use of duct tape (yes, duct tape).

13. *What is unique about the hepatitis B virus (HBV) genome?*

- Hepatitis B virus is the only DNA virus that causes hepatitis; all other cases are from RNA viruses.

14. *Describe the steps HBV undertakes to replicate its genome.*