

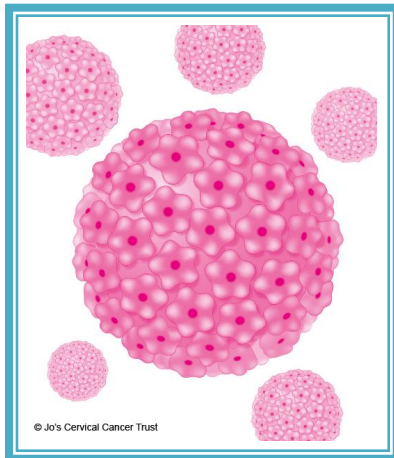
# Human papillomavirus Fact Sheet

Human papillomavirus (HPV) is the most common sexually transmitted infection. HPV is so common that nearly all sexually active men and women get it at some point in their lives. In most cases, HPV remains dormant in a latent form and does not cause any health problems, but when HPV becomes active it can lead to the development of warts and cancer.

## General Information

### *Virology*

HPV is from the Papovaviridae family and is a double stranded DNA, non-enveloped virus, meaning it lacks the outer lipid membrane making it harder to inactivate through chemical disinfection. Like all papillomaviruses, HPV infection is limited to the basal cells of stratified epithelium, the only tissue in which they replicate. The virus cannot bind to live tissue; instead it infects epithelial tissues through micro-abrasions or other skin trauma that exposes segments of the basement membrane. The infectious process takes approximately 12-24 hours for initiation of transcription.



### *Epidemiology of transmission*

HPV infection occurs when the virus enters your body through a cut, abrasion or small tear in the outer layer of your skin. Sexually transmitted HPV is transferred primarily through contact with infected genital skin, mucous membranes or bodily fluids.

Furthermore, it is possible for a mother with an HPV infection to transmit the virus to her infant during delivery. This exposure may cause HPV infection in the baby's genitals or upper respiratory system.

### *Clinical manifestations*

Most people who have HPV do not know they are infected. Most HPV infections occur without any symptoms and remain dormant in a latent form. However, in some people HPV infections can persist for many years which can lead to health problems such as the development of warts:

- *Genital Warts:* Genital warts may appear as flat lesions, small cauliflower-like bumps or tiny stem-like protrusions
- *Common Warts:* Common warts appear as rough, raised bumps that usually occur on the hands, fingers or elbows
- *Plantar Warts:* Plantar warts are hard, grainy growths that usually appear on the heels or balls of your feet
- *Flat Warts:* Flat warts are flat-topped, slightly raised lesions darker than your regular skin color. They usually appear on your face, neck or on areas that have been scratched

Another health concern regarding HPV is the development of cervical cancer in females and penile cancer in males. Most cases of cervical cancer are caused by two specific varieties of genital HPV, HPV 16 and HPV 18. These two strains don't cause warts so women often don't realize they have been infected. Early stages of cervical cancer typically have no signs or symptoms emphasizing the importance of regular Pap tests.

### *Basic Prevention*

To protect HPV infections that cause common warts ensure to wear shoes and sandals in public pools and locker rooms. To prevent the spread of infection and formation of new warts do not pick at a wart or bite your nails. To reduce the risk of developing genital warts ensure to practice safe sex and reduce your number of sexual partners. Furthermore, there are now vaccines available that protect against the strains of HPV that cause most genital warts and cervical cancer. The CDC recommends routine HPV vaccination for girls and boys under ages 11 and 12 or up until age 26 for those not fully vaccinated by 11 or 12.



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## Infection Prevention and Control Measures

### *Facility Prevention Measures*

Routine / Standard Precautions are sufficient preventative measures to follow when providing care to patients who are suspected or confirmed to have HPV.

- Use PPE barriers (such as gloves and / or goggles) when anticipating contact with blood or body fluids
- Immediately wash hands and other skin surfaces after contact with blood, body fluids or infected skin
- Care should be taken when handling and disposing of sharp instruments during and after use
- Gloves should be worn when handling potentially infectious specimens, cultures or tissues; laboratory coats, gowns or suitable protective clothing should be worn

### *Environmental control measures*

According to the CDC, HPV transmission through fomites (inanimate objects such as environmental surfaces) has never been documented. Currently, there is no EPA, FDA or Health Canada approved test method for disinfectant efficacy against HPV, as HPV cannot be cultured in a lab and no appropriate surrogate has been identified. Therefore, no disinfectants have an efficacy claim for HPV.

As aforementioned, HPV is a non-enveloped virus, and as such are more difficult to inactivate using chemical disinfectants. In trying to determine what product would be considered most effective, products that carry a number of efficacy claims against non-enveloped viruses such as Poliovirus, Adenovirus, Rhinovirus, Rotavirus and Norovirus are recommended. Routine cleaning and disinfection should be performed on frequently touched environmental surfaces. There should be prompt removal of blood and body fluids followed by routine disinfection. All patient care equipment should be cleaned and disinfected as per Routine / Standard Practices before reuse with another patient or a single use device should be used and discarded in a waste receptacle after use. Semi-Critical and Critical instruments which come into contact with mucous membranes or penetrate sterile tissues need to be adequately sterilized using appropriate methods of sterilization.

## References:

1. Genital HPV Infection - Fact Sheet, CDC, 2016. <http://www.cdc.gov/std/hpv/stdfact-hpv.htm>
2. Chen AC et al. Human papillomavirus DNA detected in peripheral blood samples from health Australian male blood donors. J. Med. Virol. 81 (10):1792-6
3. Information About the Human Papillomavirus (HPV), WebMD. <http://www.webmd.com/sexual-conditions/hpv-genital-warts/hpv-virus-information-about-human-papillomavirus#2>
4. HPV Infection. Mayo Clinic. <http://www.mayoclinic.org/diseases-conditions/hpv-infection/basics/symptoms/con-20030343>
5. Pommerville, Jeffrey C. Alcamo's fundamentals of microbiology (2011). Ninth edition. Jones and Bartlett Publishers. Sudbury, MA.

