

# Human Papillomavirus

## Fact Sheet

### What is it?

- The human papillomavirus (HPV) is one of the most common families of viruses in the world today and the world's leading sexually transmitted infection.<sup>1</sup>
- HPV causes cervical cancer and is linked to vaginal, vulvar and anal cancers.<sup>2</sup>
- HPV also causes benign tumors like genital warts and Recurrent Respiratory Papillomatosis (RRP),<sup>3</sup> a disease of the respiratory tract where lesions grow on the larynx and sometimes on the trachea and the lungs. If left untreated, RRP lesions may grow and cause suffocation and death. Babies can contract RRP from HPV infected mothers as they pass through the birth canal.<sup>4</sup>
- While researchers believe there are over 200 different types of HPV, only about 80 have been identified.<sup>5</sup>
- Genital HPV is transmitted by skin-to-skin contact with the penis, scrotum, vagina, vulva or anus of an infected person.<sup>6</sup>
  - Kissing or touching a partner's genitals with the mouth can also transmit HPV.
  - HPV is *not* transmitted by blood.
  - A recent study found that women did not have lesions associated with HPV when their male partners used condoms 100 per cent of the time during sexual relations.<sup>7</sup> However, one in four sexually active Canadian teens between the ages of 14 and 17 do not use any protection and half of those who do use condoms never check to see if it remains intact after use.<sup>8</sup>
- HPV infects the skin, lining of the mouth, tongue, throat, tonsils, vagina, penis, cervix and anus.

### Prevalence and importance

- It is estimated that 75 per cent of all sexually active Canadians will have at least one HPV infection in their lifetime.<sup>9</sup> For most people the infection goes away on its own.
  - In young Canadian women, prevalence is reaching 29 per cent.<sup>10</sup> In other words, nearly one in three young women is infected with the virus at any particular time.
- Cervical cancer is the second most common cancer in Canadian women aged 20-44 years old after breast cancer.<sup>11</sup>
- In Canada, approximately 1,400 women are diagnosed with cervical cancer every year and 420 women die from it. On average, one Canadian woman dies of cervical cancer every day and four other women are given the diagnosis.<sup>12</sup>

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- The lifetime risk of developing genital warts is approximately one in 10.<sup>13</sup>
- It is estimated that up to 75,000 Canadian women aged 15-49 currently have visible genital warts.<sup>14 15</sup>
- Most people (66 per cent) who have sexual contact with a partner infected by genital warts will develop warts themselves usually within three months of contact.<sup>16</sup>
- HPV types 6, 11, 16 and 18 account for approximately 70 per cent of cervical and anogenital cancers and high-grade pre-cancers, 35-50 per cent of low grade cervical, vaginal and vulvar lesions, more than 90 per cent of genital warts and all four types cause abnormal Pap test results.<sup>17</sup>
- Approximately 220 Canadian women die from vulvar/vaginal cancer each year<sup>18</sup>. In fact, Canada has among the highest reported rates of cancer of the vulva worldwide.<sup>19</sup>
- Anal cancer, also linked to HPV, has been increasing in several countries, especially among people living in metropolitan areas. For example, squamous carcinomas of the anal canal increased 353 per cent for men and 134 per cent for women living in Metropolitan Montreal between the periods of 1984-1986 and 1999-2001.<sup>20</sup>

### **Signs and symptoms**

- Many people with an HPV infection do not know they have one.
- In cases of genital warts, cauliflower-like growths appear and symptoms can include itching, burning and, in anal warts, occasional bleeding as a result of anal sex or bowel movement.<sup>1</sup>
- Lesions in the cervix (cervical dysplasia, a pre-cancerous condition) rarely have noticeable symptoms but they can be detected through a Pap test.<sup>1</sup>

### **Diagnosis**

- Screening for HPV using DNA testing is not widely available and is expensive.
- A Pap test (sometimes called a Pap smear) collects cells from a woman's cervix to help identify abnormal cell changes before cancer develops.
  - The most critical limitation of Pap testing is the high rate of false-negative results: between five and 20 per cent.<sup>21</sup> About one third of false-negative diagnoses are attributable to slide interpretation errors and two thirds to poor sample collection and slide preparation.<sup>22</sup>
  - Pap tests are also less accurate unless high grade cervical lesions are present.<sup>23</sup> Cervical lesions are classified by severity using a system known as 'CIN' (cervical intraepithelial neoplasia). CIN 1, or stage 1 lesions, are considered low grade and can clear up on their own, whereas CIN 2 and CIN 3 are considered high grade and are pre-cursors to cervical cancer.<sup>24</sup>

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### **Treatment**

- Depending on the stage of cervical cancer, there are treatment options such as LEEP (loop electrosurgical excision procedure – the removal of tissue using a hot wire loop), laser therapy, radical hysterectomy, chemotherapy and radiation therapy.<sup>25</sup>
- Genital warts can be removed by laser therapy, chemical treatments or immunotherapy, but they can also reappear.<sup>26</sup>
- Treatments for genital warts can be distressing, embarrassing, painful or uncomfortable, both initially and with each recurrence.<sup>27</sup>
- In a worldwide survey, almost 60 per cent of patients whose genital warts initially regressed had recurrences.<sup>27</sup>

### **Sources:**

<sup>1</sup> SexualityandU Web site, administered by the Society of Obstetricians and Gynaecologists of Canada. (Accessed at [http://www.sexualityandu.ca/eng/teens/STI/whatarethey\\_hpv.cfm](http://www.sexualityandu.ca/eng/teens/STI/whatarethey_hpv.cfm))

<sup>2</sup> University of Florida Shands Cancer Centre Web site. (Accessed at <http://www.ufsc.ufl.edu/Professional/cancernews.aspx?section=cancernews&id=32590>)

<sup>3</sup> A Population Based HPV Immunization Program in British Columbia: Background Paper. Cancer Prevention Program, BC Cancer Agency. January 17, 2006. (Accessed at <http://www.bccancer.bc.ca/NR/rdonlyres/D6298017-CC39-4E4B-B752-D4FF35950828/14494/HPVImmunizationReportJanuary172007.pdf>)

<sup>4</sup> International RRP ISA Center Web site. (Accessed at <http://rrpwebsite.org/>)

<sup>5</sup> Anhang R et al. HPV Communication: Review of Existing Research and Recommendations for Patient Education. *CA Cancer J Clin.* 2004; 54: 248–259.

<sup>6</sup> Public Health Agency of Canada Web site. (Accessed at [http://www.phac-aspc.gc.ca/publicat/epiu-aepi/std-mts/hpv\\_e.html](http://www.phac-aspc.gc.ca/publicat/epiu-aepi/std-mts/hpv_e.html))

<sup>7</sup> Winer RL, et al. Condom Use and the Risk of Genital Human Papillomavirus Infection in Young Women. *NEJM* June 22, 2006 vol. 354;25.

<sup>8</sup> Canadian Association for Adolescent Health Web site (Accessed at <http://www.acsa-caah.ca/ang/pdf/misc/research.pdf>)

<sup>9</sup> Health Canada, *It's Your Health HPV* Web site. (Accessed at [http://www.hc-sc.gc.ca/iyh-vsv/diseases-maladies/hpv-vph\\_e.html](http://www.hc-sc.gc.ca/iyh-vsv/diseases-maladies/hpv-vph_e.html))

<sup>10</sup> Steben M et al. Genital Human Papillomavirus (HPV) Infections. Canadian Guidelines on Sexually Transmitted Infections (STI). 2006 Edition. (Accessed at [http://www.phac-aspc.gc.ca/std-mts/sti\\_2006/pdf/papillomavirus\\_e.pdf](http://www.phac-aspc.gc.ca/std-mts/sti_2006/pdf/papillomavirus_e.pdf))

<sup>11</sup> Loraine D. Marrett, Jennifer Froot, Diane Nishri and Anne-Marie Ugnat. Cancer incidence in young adults in Canada: preliminary results of a cancer surveillance project. *Chronic Diseases in Canada.* Spring 2002. Volume 23 Number 2. (Accessed at [http://www.phac-aspc.gc.ca/publicat/cdic-mcc/23-2/b\\_e.html](http://www.phac-aspc.gc.ca/publicat/cdic-mcc/23-2/b_e.html))

<sup>12</sup> Public Health Agency of Canada, *Cervical Cancer Screening in Canada: 1998 Surveillance Report, Executive Summary.* (Accessed at [http://www.phac-aspc.gc.ca/publicat/ccsic-dccuac/exec\\_e.html](http://www.phac-aspc.gc.ca/publicat/ccsic-dccuac/exec_e.html))

<sup>13</sup> Franco, E, Trottier, H. The epidemiology of genital human papillomavirus infection. *J. Vaccine. In Press, Corrected Proof, Available online December 13, 2005.*

- <sup>14</sup> Statistics Canada. CANSIM table 051-0001: Population by sex and age group. (Accessed at <http://www40.statcan.ca/l01/cst01/demo10a.htm?sdi=population%20age>)
- <sup>15</sup> Sellors JW et al. Prevalence and predictors of human papillomavirus in women in Ontario, Canada. *CMAJ* 2000;163(5):503-8.
- <sup>16</sup> National Institute of Allergy & Infectious Diseases Web site. (Accessed at <http://www.niaid.nih.gov/factsheets/stdhpv.htm>)
- <sup>17</sup> Efficacy of a Prophylactic Quadrivalent Human Papillomavirus (HPV) (Types 6, 11, 16, 18) L1 Virus-Like Particle (VLP) Vaccine for Prevention of Cervical Dysplasia and External Genital Lesions (EGL). Presented by C. Sattler at the 45th Annual Interscience Conference on Antimicrobial Agents and Chemotherapy (ICAAC) in Washington, DC.
- <sup>18</sup> Statistics Canada. CANSIM table 102-0522. Deaths, by cause, Chapter II: Neoplasms (C00 to D48), age group and sex, Canada, 2000-2003.
- <sup>19</sup> Woman's Health Surveillance Report. Published September 30, 2003. (Accessed at [http://www.cihi.ca/cihiweb/dispPage.jsp?cw\\_page=PG\\_29\\_E&cw\\_topic=29&cw\\_rel=AR\\_342\\_E](http://www.cihi.ca/cihiweb/dispPage.jsp?cw_page=PG_29_E&cw_topic=29&cw_rel=AR_342_E))
- <sup>20</sup> Goggin P et al. Trends in Anal Cancer Incidence in Quebec. *Institut national de la santé publique du Québec*. Abstract presented at the 22nd International Papillomavirus Conference in Vancouver on May 3, 2005.
- <sup>21</sup> Popadiuk C et al. "Pap Smears: A review of What's New", *The Canadian Journal of CME*. October, 2002:109-117. (Accessed at <http://www.stacommunications.com/journals/cme/images/cmepdf/cmeoct02/papsmear.pdf>)
- <sup>22</sup> Franco EI et al. Vaccination against human papillomavirus infection: a new paradigm in cervical cancer control. *Vaccine*. 2005; 23: 2388-2394.
- <sup>23</sup> National Institute of Health Web site. (Accessed at <http://www.ncbi.nlm.nih.gov/books/bv.fcgi?rid=hstat1.section.7063>)
- <sup>24</sup> Cancer Consultants Web site. (Accessed at [http://patient.cancerconsultants.com/cervical\\_cancer\\_news.aspx?id=36721](http://patient.cancerconsultants.com/cervical_cancer_news.aspx?id=36721))
- <sup>25</sup> University of Maryland Medical Centre, What are the general guidelines for treating cervical cancer? (Accessed at [http://www.umm.edu/patiented/articles/what\\_general\\_guidelines\\_treating\\_cervical\\_cancer\\_000046\\_11.htm](http://www.umm.edu/patiented/articles/what_general_guidelines_treating_cervical_cancer_000046_11.htm))
- <sup>26</sup> Planned Parenthood Federation of America, Inc. Web site. (Accessed at <http://www.plannedparenthood.org/pp2/portal/files/portal/medicalinfo/sti/pub-sti-genital-warts-hpv.xml>)
- <sup>27</sup> Maw RD, Reitano M, Roy M. An international survey of patients with genital warts: Perceptions regarding treatment and impact on lifestyle. *Int J STD AIDS* 1998;9:571-8.