### Introduction

**Genital Human Papilloma Virus (HPV)**

More than 40 genital types, subcategorised as:

- Low risk HPV (LrHPV) – **not** associated with pre-cancer or cancer of the lower genital tract.
- High risk HPV (HrHPV) – **associated** with pre-cancer and cancer of the lower genital tract.

**Presents as:**

- **Genital warts** – always due to LrHPV.
- **Latent and/or subclinical** (as detected on cervical smear, not visible to the naked eye) – **may be either HrHPV or LrHPV.**

### Epidemiology

- A common infection with a prevalence of 20% in 20-year-olds.
- Lifetime risk of HPV infection > 80%.
- The majority of infections are transient with 80-90% clearance within 2 years.

### Acquisition

- Genital HPV infection is often found in people who have recently become sexually active.
- Most genital HPV infections are subclinical.
- On average, 80% of sexually active adults will have had some form of HPV infection during their lives.
- HPV infection increases in incidence in proportion to the number of sexual partners.
- For most people, infection with each HPV type is transient and clears spontaneously within the first 6 to 12 months, but in some cases HPV infection persists or remains latent and may reactivate years or decades later.

### Transmission

- HPV is highly infectious and is transmitted by skin-to-skin contact.
- If one member of a stable partnership has genital HPV infection, the other is likely to be either infected or immune to that infection.
- Condoms provide limited protection against HPV infection, but their use is recommended to prevent other sexually transmitted infections.
- Because of variable latency, HPV infection may develop during a long-term relationship and does not necessarily imply infidelity.

### HPV and Pregnancy

- Genital HPV is common in pregnant women.
- It is extremely rare for babies to develop clinical HPV. Where it does occur it usually manifests as recurrent respiratory papillomatosis and this may cause serious illness in the neonate.
- Transient HPV colonisation in the neonate is common, but persistent infection is unusual.
- Ablative methods, e.g. cryotherapy or diathermy, should be used for treatment of genital warts in pregnancy.
- Caesarean section has not been shown to significantly reduce maternal-fetal transmission.
Genital Warts

Clinical Presentation and Diagnosis

- Genital warts vary widely in appearance and distribution in the anogenital area.
- The differential diagnosis includes normal anatomical findings such as vestibular papillomatosis and pearly penile papules, dermatoses, and intraepithelial neoplasia.
- Diagnosis is generally made on clinical grounds.
- Genital warts which are atypical in appearance should be biopsied to exclude alternate diagnoses, particularly intraepithelial neoplasia.

Treatment

- The primary goal of treatment is to eliminate warts that cause physical or psychological symptoms. Non-treatment is an option for asymptomatic warts and the cure should not be worse than the disease.
- There is no definitive evidence that any one treatment is superior to the others and no single treatment is suitable for all patients or all warts.
- The method of treatment should be determined by patient preference, available resources and the experience of the practitioner. Other factors include the size, number and site of the warts, the age of the patient and whether the patient is pregnant.
- Commonly used treatments in primary care are self-administered podophyllotoxin (recommended for males only) or imiquimod, and practitioner administered cryotherapy repeated weekly until warts have disappeared.
- If there is no significant response within 4 to 6 weeks, an alternative diagnosis, change of treatment modality, or onward referral should be considered.
- Patients should be given information about all the treatment options in order for them to make an informed decision.
- Continuing lack of response to therapy should be referred to a relevant specialist to review diagnosis and management options.

Genital Warts – Summary of Treatment

<table>
<thead>
<tr>
<th>Site</th>
<th>Treatment</th>
<th>Use in Pregnancy</th>
</tr>
</thead>
<tbody>
<tr>
<td>External genital warts</td>
<td><strong>Patient applied</strong> Imiquimod (Aldara 5% cream); OR Podophyllotoxin solution (males only). <strong>Provider administered</strong> Cryotherapy; OR Trichloracetic acid; OR Surgical removal; OR Laser; OR Diathermy.</td>
<td>No</td>
</tr>
<tr>
<td>Cervical warts (high grade CIN excluded)</td>
<td>Cryotherapy with liquid nitrogen Cryoprobe not recommended in vagina because of risk of vaginal perforation/ fistula formation. However, the experienced operator can use a bent cryoprobe with protective sleeve (to stop sticking to the vaginal wall); OR Trichloracetic acid.</td>
<td>Yes</td>
</tr>
<tr>
<td>Vaginal warts</td>
<td>–Cryotherapy; OR Trichloracetic acid.</td>
<td>Yes</td>
</tr>
<tr>
<td>Urethral meatal warts</td>
<td>Cryotherapy with cryoprobe (technically difficult with liquid nitrogen). N.B. Risk of stenosis if overzealous treatment. Note: Podophyllotoxin and imiquimod have been used, but limited data.</td>
<td>Yes</td>
</tr>
<tr>
<td>Anal warts</td>
<td>Cryotherapy. Special open-sided anoscopes and bent probes are available to permit treatment laterally; OR Surgical removal.</td>
<td>Yes</td>
</tr>
<tr>
<td>Oral</td>
<td>Cryotherapy; OR Surgical removal.</td>
<td>Yes</td>
</tr>
</tbody>
</table>
**HrHPV**

**Genital HPV and Cancer**
- HrHPV needs to be present for cancer of the cervix to develop but other factors may play a role.
- The presence of HrHPV increases the risk of developing cervical cancer.
- Women who have HrHPV need more frequent monitoring because of the increased risk.
- Most women with HrHPV will not develop cervical cancer and in many the HrHPV will resolve spontaneously.
- The presence of HrHPV increases the risk of developing pre-cancerous states – cervical intraepithelial neoplasia (CIN).
- HrHPV also plays a significant role in other lower genital tract pre-cancers and cancers: (Cervical 100%), vaginal 90%, anal 80%, penile 50%, vulval 40%, head and neck 26% (oral cavity and pharynx).

**HPV Vaccines**
- Gardasil vaccine is safe and highly effective in preventing the four important HPV types – 6, 11, 16 and 18.
  - HPV 16 and 18 are associated with cervical cancer and precursor lesions, as well as some other genital pre-cancers and cancers.
  - HPV 6 and 11 cause the majority of genital warts.
- HPV immunisation (with the quadrivalent vaccine Gardasil) is part of the National Immunisation Schedule for girls as a school-based programme in Year 8 (except in the Canterbury region).
  - Girls who are not vaccinated at school can receive Gardasil from their local medical clinic.
  - Gardasil is FREE for girls and young women up to their 20th birthday.
- Bivalent vaccine Cervarix is available, but not funded in New Zealand.
- Ideally, individuals should be vaccinated prior to sexual exposure.
- Gardasil induces a higher immune response when given between 9-15 years than in women aged 16-26 years.
- To date, protection has been demonstrated to be stable for up to 10 years (limited to the length of time the vaccine has been in use) and projections suggest the primary 3-dose course of Gardasil offers lifelong protection.
- The vaccine shows effectiveness even with a previous history of CIN or genital warts through its ability to prevent infection with other HPV serotypes.
- The vaccine is also indicated for males aged between 9-26 years, but is not funded. Currently a funding submission is being considered to have boys aged 12-14 years included as part of the National HPV Immunisation programme.

**Clinical Presentation and Diagnosis**
- Mostly latent and/or subclinical.
- Usually detected via cervical smear in women deemed at higher risk according to the guidelines of the national cervical screening programme.
- HrHPV molecular diagnostic techniques are not used for routine diagnostic purposes, but are used according to national guidelines in the triage and management of patients with abnormal cervical smears. [http://www.nsu.govt.nz/Health-Professionals/2747.aspx](http://www.nsu.govt.nz/Health-Professionals/2747.aspx)

**Management of HrHPV**
- Goal – early detection and management of pre-cancer cell changes to prevent development of cervical cancer.
- Regular cervical screening and HPV testing as per the National Cervical Screening Programme (NCSP).
- Colposcopy/treatment of cervical cells affected by pre-cancerous changes.
- Treatment and follow-up as prescribed by the National Cervical Screening Programme.

The full NCSP Guidelines can be accessed on [http://www.nsu.govt.nz/Health-Professionals/2747.aspx](http://www.nsu.govt.nz/Health-Professionals/2747.aspx)
Genital HPV – Key Information for Patients

- Genital HPV (Human Papilloma Virus) is a common virus that is carried by a large percentage of sexually active people.
- Genital HPV is highly infectious and is transmitted by skin-to-skin contact.
- There are different strains (types) of genital HPV – some cause visible genital warts and some are subclinical (invisible to the naked eye).
- Some subclinical HPV infections are due to High Risk HPV types and if these remain undetected and untreated may lead to pre-cancer changes and/or cancer of the lower genital tract.
- Genital warts are Low Risk HPV and are not associated with the development of cervical cancer.
- It is possible to be infected by more than one type of HPV.
- Developing a genital HPV infection whilst in a long-term monogamous relationship need not imply infidelity. It is possible that one or even both were exposed to the virus months or years previously and have carried it without their knowledge.
- Most genital warts disappear even if left untreated. Treatment is usually for cosmetic and comfort reasons.
- After successful treatment, genital warts may recur – this usually happens in about 1 in 3 people.
- Many people who have genital HPV have neither symptoms nor signs and will be unaware of they have the infection.
- Regular cervical screening is essential to ensure early detection and treatment of infected cells, to prevent the development of cervical cancer.
- HPV vaccine (Gardasil) immunises against four types of genital HPV: Types 16 and 18 which cause 70% of cervical cancers and types 6 and 11 which cause 90% of genital warts.
- Currently there are no tests available to detect whether clearance of HPV has occurred.
- Condoms have some use in the reduction of transmission of genital HPV.
- Genital HPV does not affect fertility.
- Genital HPV does not stop you having sex.
- **Cervical cancer can be prevented by HPV vaccination and having regular smears.**