

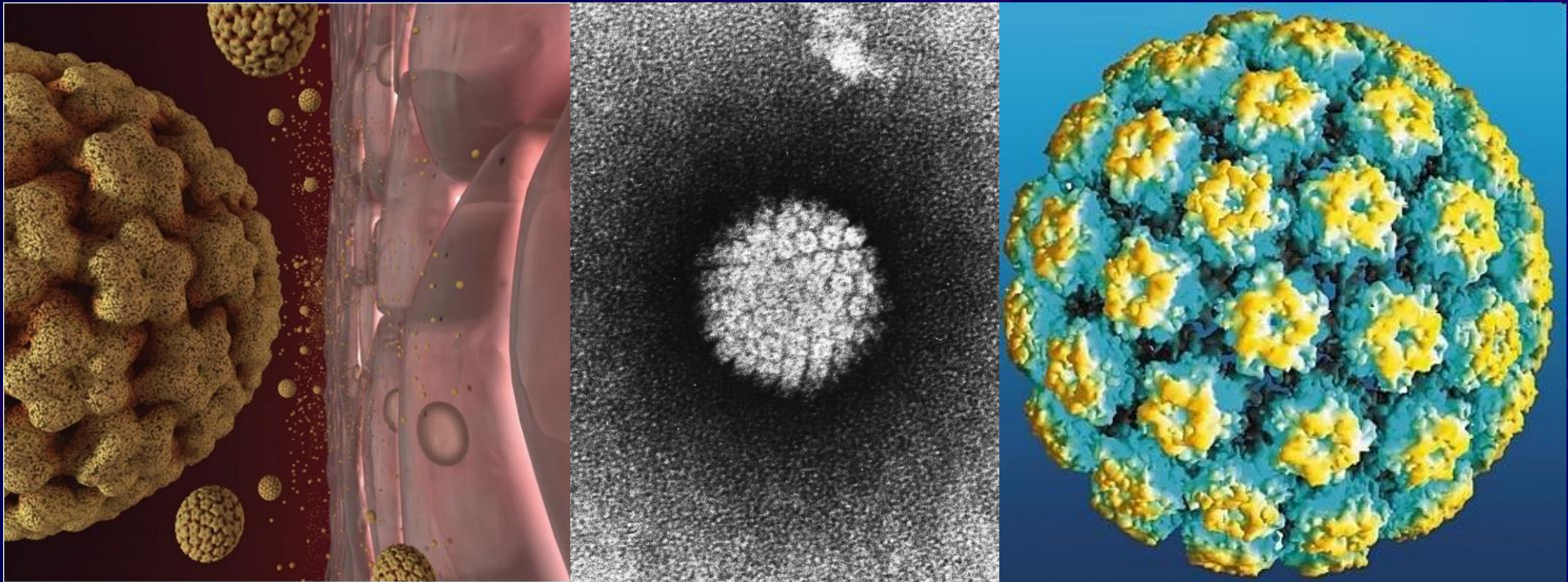


Human Papillomavirus (HPV)

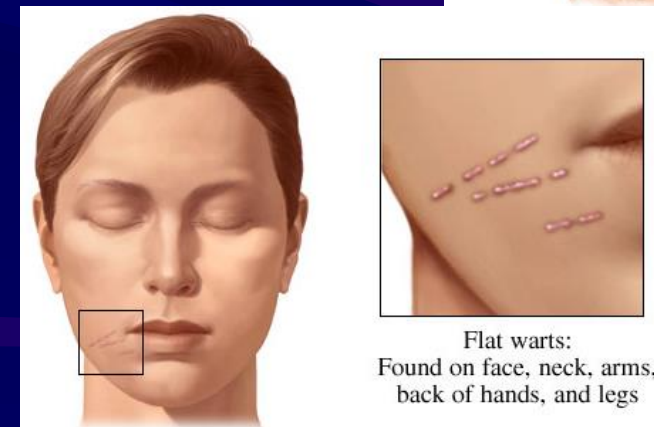
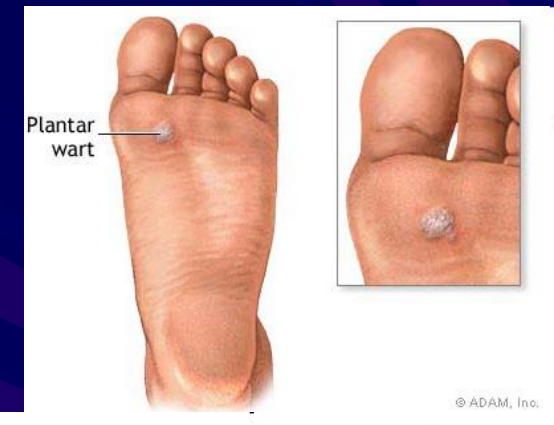
Dr Moghtader

A human papillomavirus (HPV) is a virus that infects the epidermis and mucous membranes.

- Over 130 HPV Types
- Lifecycle somewhat unknown.
- Several months to years may elapse before the abnormal growth of cells



Disease	HPV type
Common warts	2, 7
Plantar warts	1, 2, 4, 63
Flat warts	3, 10
Anogenital warts	6, 11, 42, 44 and others
Genital cancers	■ Highest risk : 16, 18, 31, 45 ■ Other high-risk : 33, 35, 39, 51, 52, 56, 58, 59 ■ Probably high-risk : 26, 53, 66, 68, 73, 82
Epidermodysplasia verruciformis	more than 15 types
Focal epithelial hyperplasia (oral)	13, 32
Oral papillomas	6, 7, 11, 16, 32



Human Papillomavirus (commonly called Genital Warts)

- Human Papillomavirus (HPV) is a virus that can cause various disease states including “genital” or “venereal” warts
- Papillomaviruses are a complex group of DNA tumor viruses. They can cause benign growths (papillomas), cancers, or more commonly, transient infections
- HPV infection is causally associated with cervical cancer ; other genital cancers including anal, penile, vulvar, and vaginal cancers may have HPV as co-factor

HPV Prevalence

- Most common STD
 - Yearly incidence of 6.2 million
 - 20 million currently infected
 - 80 million infected at least once between the ages of 15-49
- An estimated 9.2 million sexually active adolescents and young adults 15-24 years of age are infected with genital HPV
- An estimated 5%-30% of people infected with genital HPV are infected with multiple types of the virus
- 316,000 initial visits to physicians' offices (2004)-genital wart diagnosis

GENITAL HPV INFECTION

1%	1.4 MILLION	VISIBLE WARTS
4%	5 MILLION	Subclinical (Colposcopy)
10%	14 MILLION	Subclinical (DNA testing)
60%	81 MILLION	Prior infection (+ antibodies)
25%	34 MILLION	No prior/current infection

HPV

- Small virus – 130 types
 - Low-risk e.g. 6, 11
 - High-risk e.g. 16, 18
- Associated with various disease from skin warts to cervical cancer
- Transmission via skin-to-skin/sexual
- Most common STD

Risk Factors for Acquiring a Genital HPV Infection

- Young age (less than 25 years)
- Multiple sex partners
- Early age at first intercourse (16 years or younger)
- Male partner has (or has had) multiple sex partners

HPV Transmission

- Direct skin-to-skin contact
 - Usually, but not always sexual contact
- Infected birth canal
- Fomites (very rare)

Friction and abrasion are key factors.

Difficult to determine how and where infection occurred due to poor standardized tests and variable latency periods.

How is HPV spread?

- Any kind of sexual activity involving skin to skin genital contact with an infected person — intercourse isn't necessary.
- People with HPV may not show any signs or symptoms, so they can pass the virus on without knowing it.

What about oral sex?

- It can occur in the mouth, throat or respiratory tract
- It is relatively uncommon
- It appears to be an inefficient mode for transmission

HPV Incubation

- Average incubation is 3 weeks to 1 year
- Possibly years before appearance of warts or cervical abnormalities
- Some will be transient and may never be detected

Common Symptoms of Genital Warts in Males & Females

- The symptoms may include single or multiple fleshy growths around the penis, scrotum, groin, vulva, vagina, anus, and/or urethra
- They may also include: itching, bleeding, or burning, and pain
- The symptoms may recur from time to time

Genital Warts-Duration and Transmission

- May regress spontaneously, or persist with or without proliferation.
 - Frequency of spontaneous regression is unclear, but estimated at 10–30% within three months.
 - Persistence of infection occurs, but frequency and duration are unknown.
 - Recurrences after treatment are common.

Genital Warts and High-Risk HPV

- High-risk HPV types occasionally can be found in visible warts and have been associated with squamous intraepithelial lesions (squamous cell carcinoma *in situ*, Bowenoid papulosis, Erythroplasia of Queyrat, or Bowen's disease of the genitalia).
- The lesions can resemble genital warts.
- Unusual appearing genital warts should be biopsied.

Genital Warts in a Male



Source: CDC/ NCHSTP/ Division of STD Prevention,
STD Clinical Slides



Source: Cincinnati STD/HIV Prevention
Training Center

HPV Penile Warts



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Training
Center

Source: Cincinnati STD/HIV Prevention Training Center



Pearly Penile Papules



Vestibular papillomatosis



Intra-meatal Wart of the Penis (and Gonorrhea)



Source: Florida STD/HIV Prevention Training Center

Circumcision and HPV

- Risk for penile cancer
- May influence the risk of HPV acquisition, transmission and cervical cancer

Female Genital Warts



Source: CDC/NCHSTP/Division of STD, STD Clinical Slides

Perianal Warts



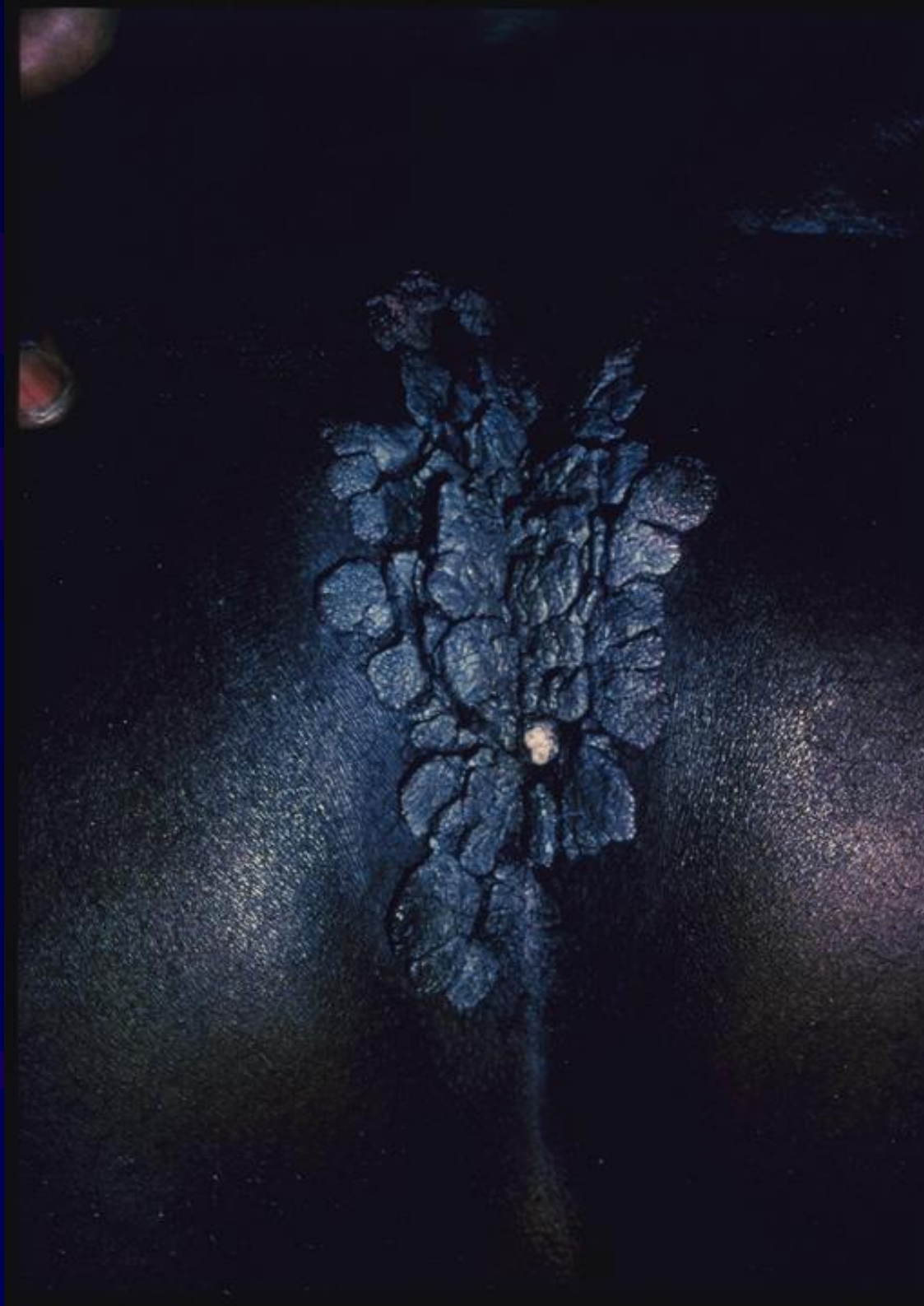
Source: Seattle STD/HIV Prevention Training Center at the University of Washington/ UW HSCER Slide Bank

Vulvar Warts



Source: Reprinted with permission of Gordon D. Davis, MD.





HPV Warts on the Thigh



Source: Cincinnati STD/HIV Prevention Training Center

Perianal Warts



Source: Cincinnati STD/HIV Prevention Training Center

Complications of Genital Warts (if untreated)

- It may destroy body tissue around the genitals and anus
- For pregnant women
 - Delivery complications or need for C-section
 - Juvenile Onset Recurrent Respiratory Papillomatosis (JO-RRP)

Testing & Treatment for Genital Warts

- Can be detected in a clinical exam;
- Can be treated by removing the warts;
- The virus cannot be removed, so the warts may grow back.



General Treatment of Genital Warts

- Primary goal is removal of warts.
- If left untreated, genital warts may regress spontaneously or persist with or without proliferation.
- In most patients, treatment can induce wart-free periods.
- Currently available therapies may reduce, but probably do not eliminate infectivity.
- Effect of current treatment on future transmission is unclear.

General Treatment of Genital Warts-continued

- No evidence that presence of genital warts or their treatment is associated with development of cervical cancer.
- Some patients may choose to forgo treatment and await spontaneous resolution.
- Consider screening persons with newly diagnosed genital warts for other STDs (e.g., chlamydia, gonorrhea, HIV, syphilis).

Treatment Regimens

- Patient-applied and provider-administered therapies are available.
- Providers should be knowledgeable about and have available, at least one patient-applied and one provider-administered treatment.
- Choice of treatment should be guided by
 - Patient preference,
 - Available resources,
 - Experience of the healthcare provider,
 - Location of lesion(s), and
 - Pregnancy status.

HIGH-RISK HPV INFECTION TREATMENT

- **OBSERVATION**
- **CRYOTHERAPY-LASER**
- **CONE BIOPSY-SURGERY**
- **RETINOIDS??**

Treatment Regimens-continued

- Factors influencing treatment selection include
 - Wart size,
 - Number of warts,
 - Anatomic site of wart,
 - Wart morphology,
 - Patient preference,
 - Cost of treatment,
 - Convenience, and
 - Adverse effects.

Papillomavirus

Treatment

- Primary goal for treatment of visible warts is the removal of symptomatic warts
- Therapy may reduce but probably does not eradicate infectivity
- Difficult to determine if treatment reduces transmission
 - No laboratory marker of infectivity
 - Variable results utilizing viral DNA

HPV Treatment Options

- Chemical agents
- Cryotherapy
- Electrosurgery
- Surgical excision
- Laser surgery
- Imiquimod (Aldara)
- Defer treatment
- Natural therapies

Papillomavirus

■ Patient-applied

Podofilox (Condylox) 0.5% solution or gel

Apply 2x/day for 3 days, followed by 4 days of no therapy.

Repeat as needed, up to 4x

or

Imiquimod (Aldara) 5% cream

Apply 1x/day @ bedtime 3x/week for up to 16 weeks

■ Sinecatechins 15% ointment^{*,**}

- Apply ointment 3 times daily for up to 16 weeks.
- ***Do not wash off*** post-application

**Safety not established in pregnancy*

***Safety not established in HIV- or HSV-co-infected individuals*

Provider-administered

Cryotherapy (liquid nitrogen) **repeat every 1-2 weeks*

or

Podophyllin resin 10-25% **thoroughly wash off in 1-4 hrs*

or

**Trichloroacetic or
Bichloroacetic acid 80-90%**

**can be repeated weekly*

Papillomavirus

Vaginal warts

Cryotherapy or TCA/BCA 80-90%

Urethral meatal warts

Cryotherapy or podophyllin 10-25%

Anal warts

Cryotherapy or TCA/BCA 80-90%

Papillomavirus

- Therapy choice needs to be guided by preference of patient, experience of provider, and patient resources (time and/or money)
- No evidence exists to indicate that any one regimen is superior
- An acceptable alternative may be to do nothing but watch and wait; possible regression/uncertain transmission

HPV is INCURABLE

Warts can and often do recur after treatment.

Virus can remain in surrounding tissue after warts have been destroyed.

HPV and Pregnancy

- No link with premature labor, miscarriage, or other complications
- Low rate of transmission to baby
- Range is generally from 0.4 to 1.1 cases/100,000 births
- C-section is not recommended in most instances

Treatment Regimens



Papillomavirus

Treatment in Pregnancy

- Imiquimod, podophyllin, and podofilox should not be used in pregnancy
- Many specialists advocate wart removal due to possible proliferation and friability
- HPV types 6 and 11 can cause respiratory papillomatosis in infants and children
- Preventative value of cesarean section is unknown; may be indicated for pelvic outlet obstruction or if vaginal delivery would result in excessive bleeding



Thank you for your
attention