



HPV and cervical disease

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Plan

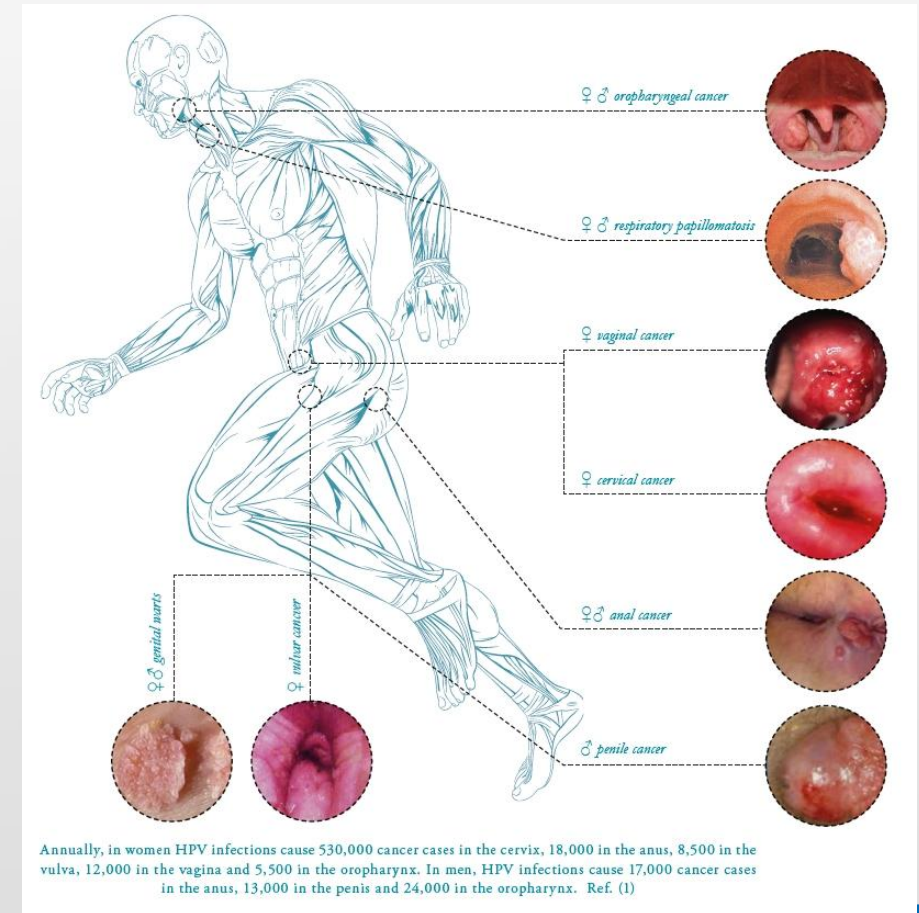
HPV

Cervical Cancer

Cervical Cancer Prevention

HPV vaccination

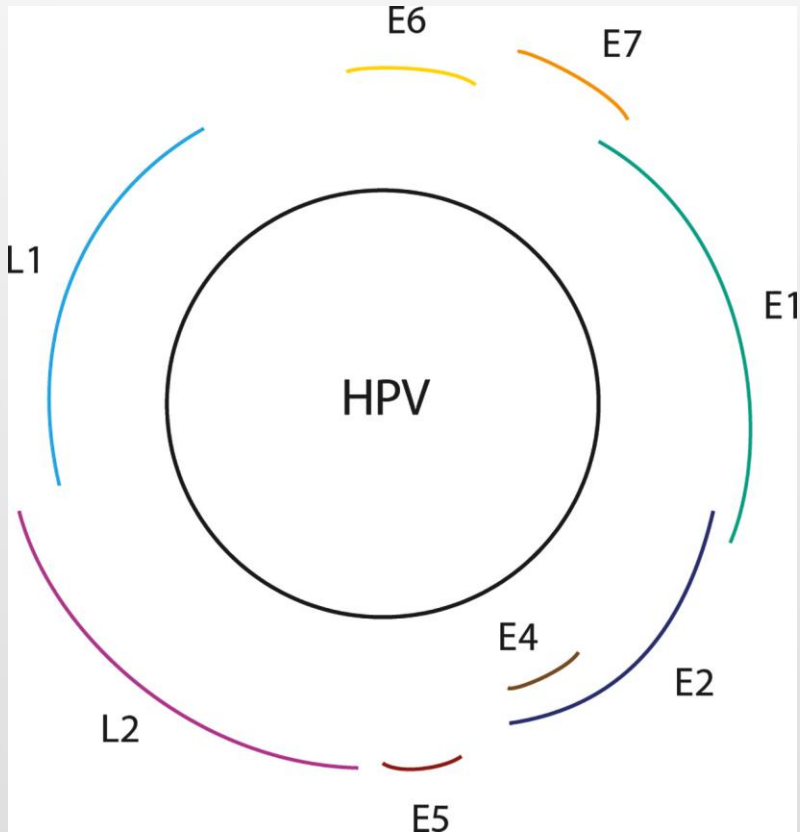
Non-cervical HPV related disease



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HPV



Double stranded DNA virus

Infects squamous epithelia – skin and mucosae of URT and anogenital tract

>120 types, common structure of three main areas – E (early), L (late) and genomic regulatory region





Genital HPV

Intimate skin to skin contact (not just penetrative SI)

Usually within 5 years of onset of sexual activity

Lifetime exposure risk of 80% in exposed individuals

Prevalence declines with age but increases with number of sexual partners

Mostly self limiting and asymptomatic (resolve 12-18 months)

Persistent in 10-15% of women and associated with various forms of cancer

Stratify into high-risk and low-risk types and further into subtypes





Bouvard Table of HPV groups

Group	Definition	HPV types
Group 1	Carcinogenic to humans	16,18,31,33,35,39,45,51,52,56,58,59
Group 2A	Probably carcinogenic to humans	68
Group 2B	Possibly carcinogenic to humans	53,64,65,66,67,69,70,73,82
Group 3	Not classifiable	6,11
Group 4	Probably not carcinogenic	





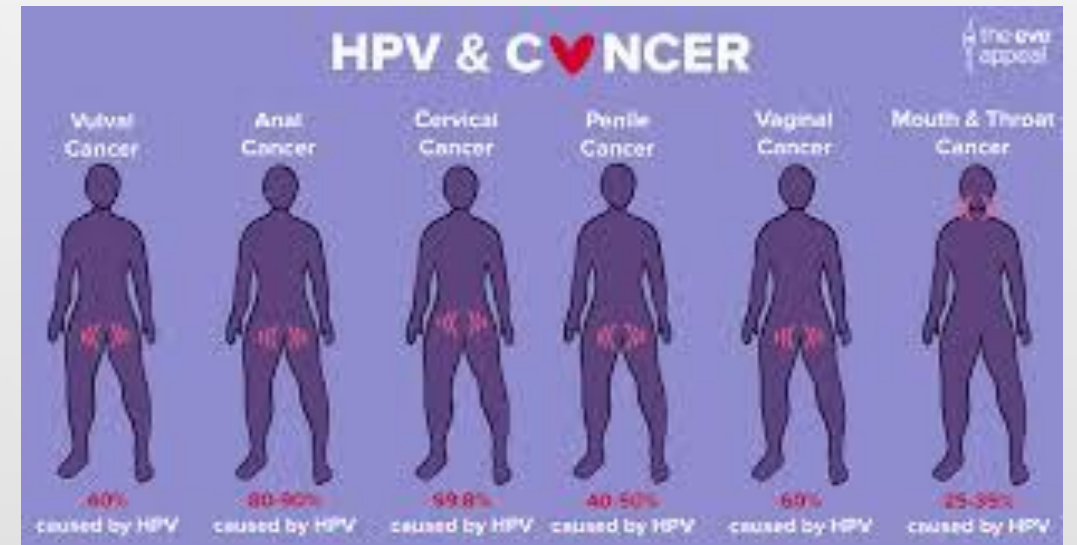
HPV 16 and 18

Most pathogenic

70-80 % of cervical cancer

40-50% of vulval/oropharyngeal

70-80% of anal cancer



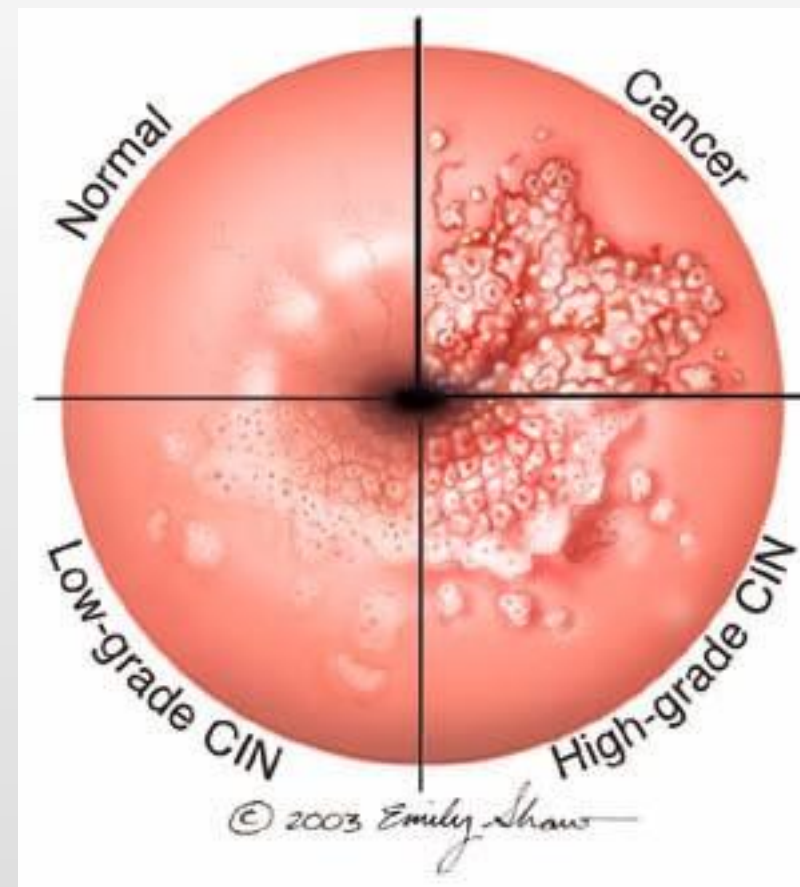


HPV and SCC cervix

400x higher with HPV 16

250x higher with HPV 18

7 year between infection →
premalignant lesion → true
malignant potential





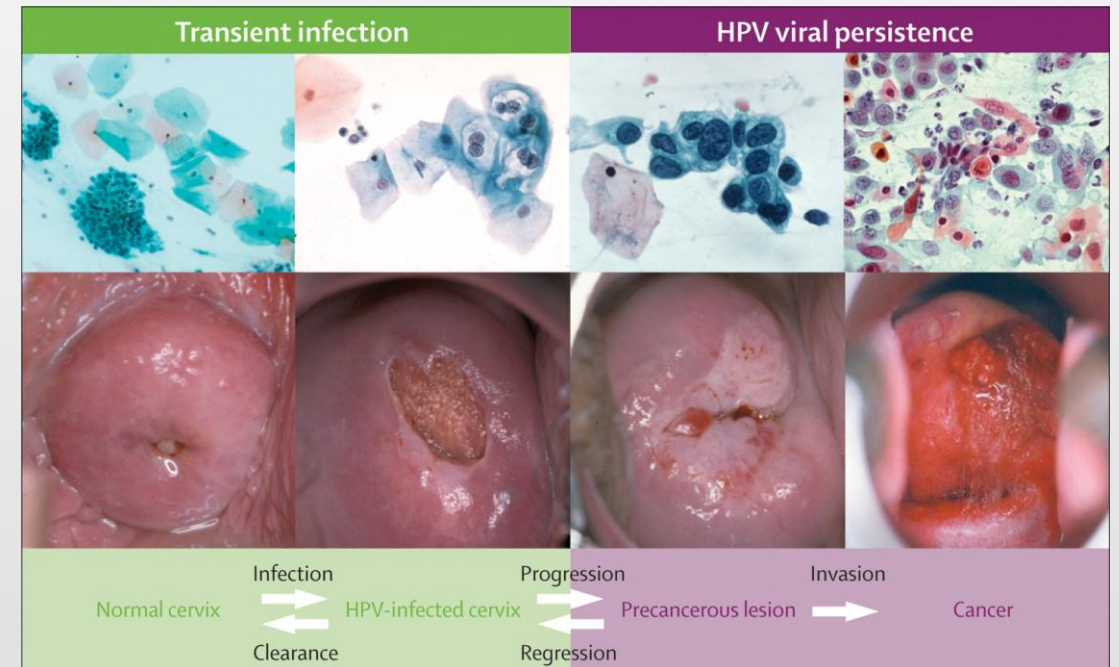
Progression of HPV

Stage 1: HPV infection

Stage 2: Persistence

Stage 3: Premalignant disease

Stage 4: Invasion leading to cancer





Worldwide burden

12% of all female cancers

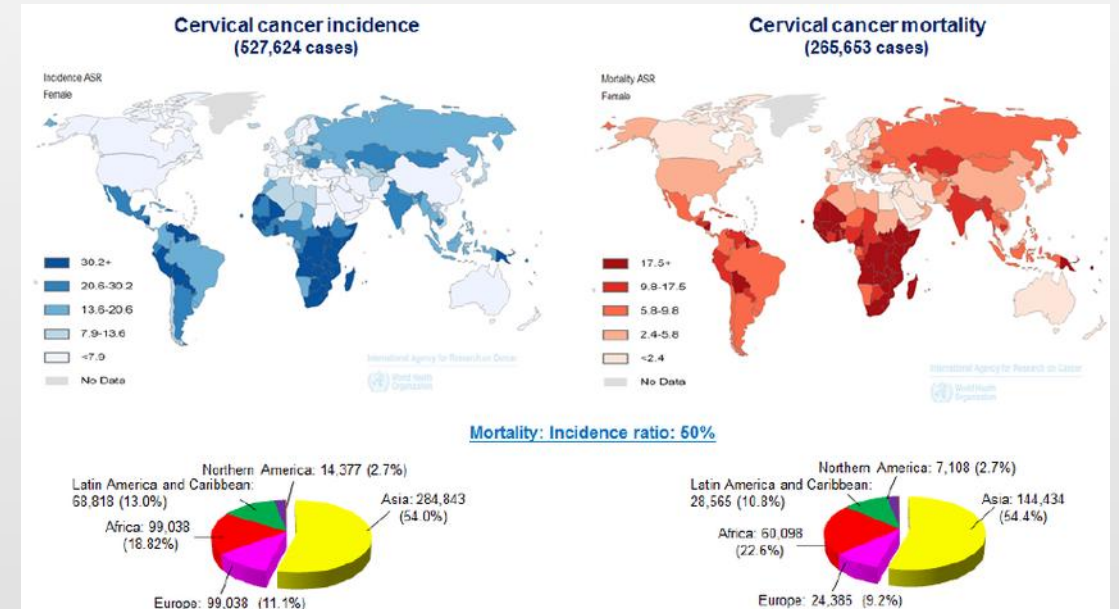
4th most frequently diagnosed cancer

Most common in women aged 15-44 years

2020: 604000 new cases, 342000 deaths

Classification based on association with HPV –
SCC/Adenocarcinoma

HPV has high prevalence but rate of cervical cancer is low → other factors → progression





Cervical Cancer Prevention

Opportunistic smear test in 1960s

Systematic call and recall programme in 1988 → rates started to fall

<24 years → little or no impact on rates of invasive cervical cancer up to age 30 years

Overtreatment with low grade lesions

First invitation at 24.5 years --> 3 yearly till aged 49 years (in Wales -- extended to 5 yearly from 2022)

Aged 50-64 years → every 5 years

>65 years → if no previous screening/abnormal cytology

>65 years → last three tests are negative → removed from screening

https://youtu.be/_OX9xoNtdiw?si=KbPEIxxvliUhAIRSZ





HR-HPV screening

Moved from LBC in 2019

98.66% sensitivity and 97.6% specificity

Samples tested for HR-HPV

If positive, undergo cytological testing

Better negative predictive value → ?reduce screening intervals to 6 years





Screening coverage

Proportion of eligible women that have been screened in previous 5 years

Acceptable threshold for cervical screening = 80%

2021-2:

- 69.9% screened
- 5.12 million individuals invited for screening
- 3.5 million tested
- 235,233 referrals to colposcopy





Smear tests and targets

- 93% within 2 weeks
 - High grade smear
 - Any glandular abnormality
 - Invasion
- 99% within 6 weeks
 - Low grade
 - Borderline
 - Persistent HPV with negative cytology
 - Inadequate
- Non NHS tests

93.8% negative

3.4% borderline

1.7% low grade

0.5% moderate

0.5% severe

<0.1% invasive





Inadequate sample

Repeat at 3 months

2x inadequate →
colposcopy

If normal at colposcopy
→ smear in community
in one year

- Incorrect labelling
- Incorrect documentation
- Too much lubricant
- No endocervical cells for glandular follow up
- Blood stained
- Insufficient cells
- Inflammatory exudate





Why HPV Validate?

3 in 10 do not take part in screening

Currently prevent about 70% of cancer but could increase to >80% if everyone participated

5,000 samples from general practice and 1,750 samples from colposcopy clinics to determine the accuracy of vaginal self-samples compared to clinician-taken samples

Reporting December 2023

Used several self sampling devices and labs





HPV vaccination



- Introduced Sep 2008 – aged 12-13 years for all girls
- Catch up for those 14-18 years between 2008-10
- Since 2019, to boys as well
- Substantial reduction in CIN3
- Successfully eliminated cervical cancer in women born since 1995
- Remain eligible to have vaccine till age 25 years





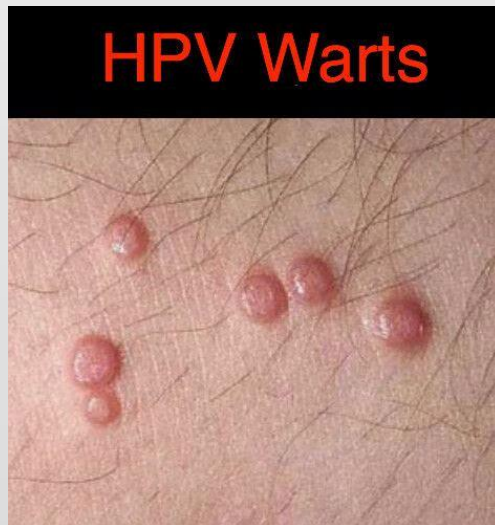
HPV vaccination after schooling

- Can get in pharmacies, travel clinics, health centres until aged 45 years
- Boots – Gardasil 9, three doses cost £495
- Some may be able obtain for free, including:
 - men who have sex with men – usually up to and including age 45
 - women and men with HIV
 - sex workers
 - transgender people





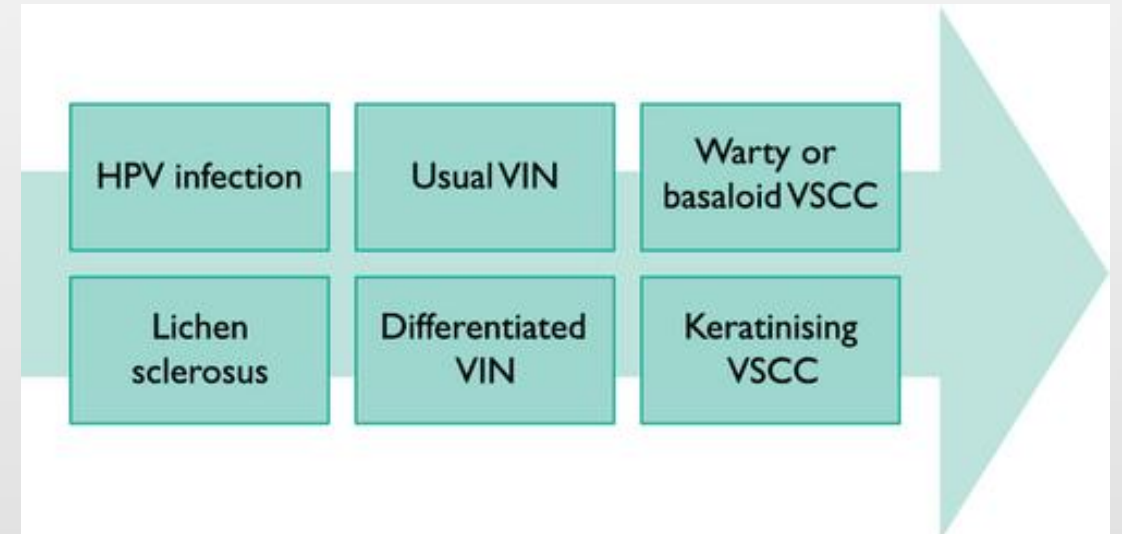
HPV type	Disease
1,2	Verruca vulgaris
1, 2,4	Plantar warts
3,10	Flat cutaneous warts
6,11	Anogenital warts, respiratory papillomatosis





Vulval cancer

- Persistent itch
- Pain or soreness
- Thickened, raised, red, lighter or darker patches on the skin of the vulva
- An open sore or growth visible on the skin
- A mole that changes shape or colour
- A lump or swelling on the vulva





HPV infection

