

HPV VIRUS

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HPV Infection

- Almost females and males will be infected with at least one type of HPV at some point in their lives
 - Estimated 79 million Americans currently infected
 - 14 million new infections/year in the US
 - HPV infection is most common in people in their teens and early 20s



A new study

- ➡ that almost 1 in 3 men over the age of 15 are infected with at least one genital human papillomavirus (HPV) type
- ➡ and 1 in 5 are infected with one or more of what are known as high risk, or oncogenic, HPV types.



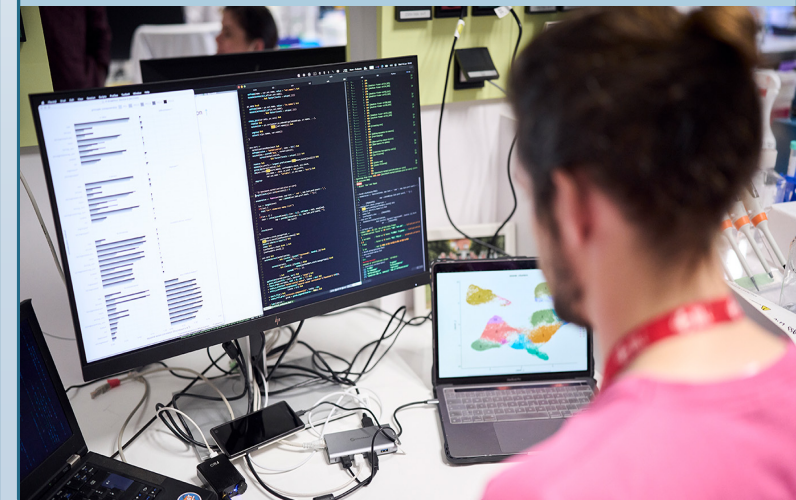
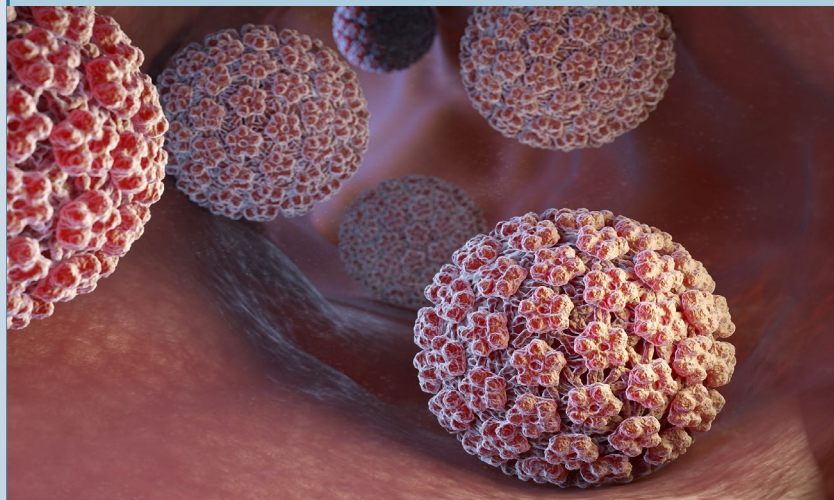
Incidence

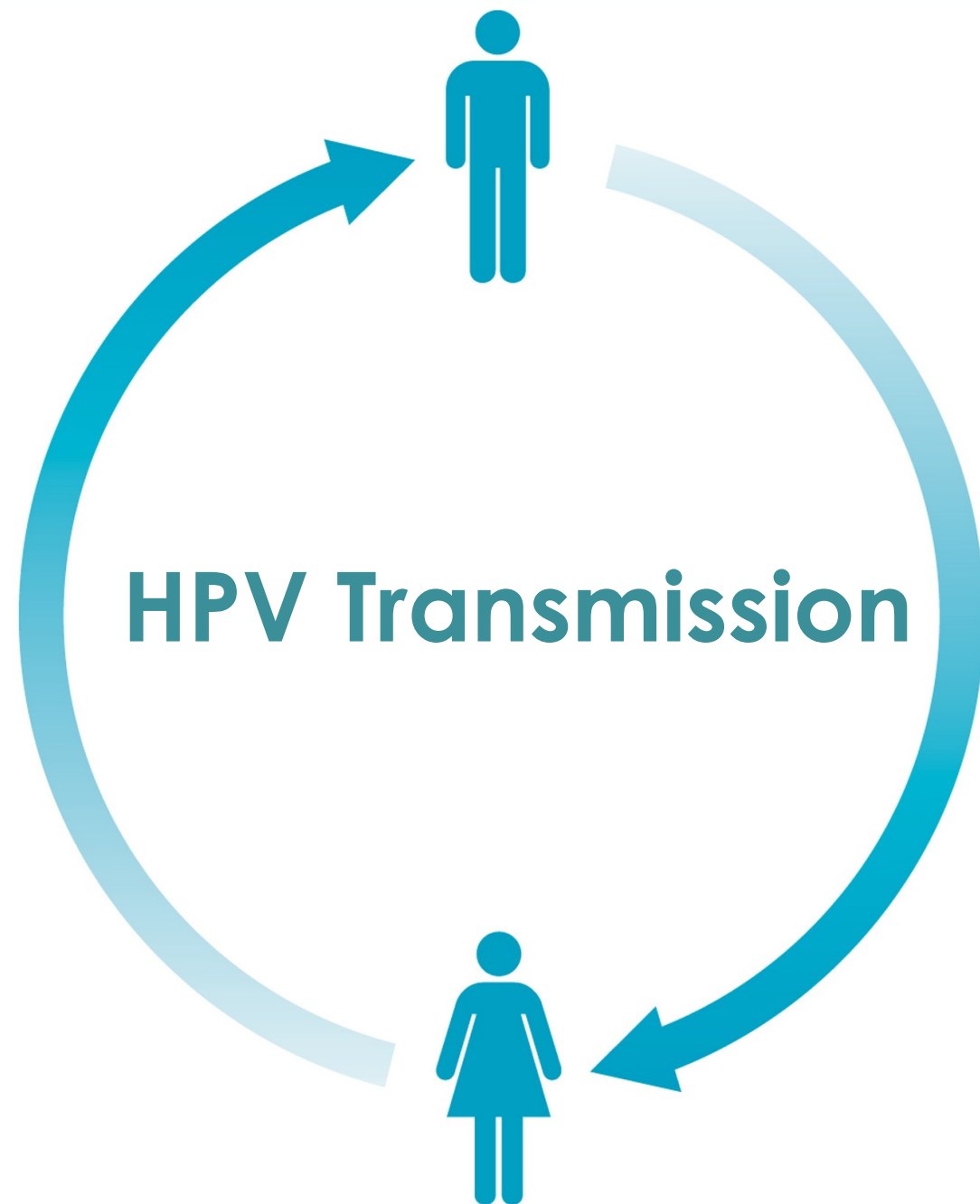
➡ The global pooled prevalence was 31% for any HPV and 21% for high-risk HPV.

➡ HPV-16 was the most prevalent HPV genotype (5%) followed by HPV-6 (4%).

➡ HPV prevalence was high in young adults, reaching a maximum between the ages of 25 years and 29 years

Global prevalence of genital HPV among men:





- **HPV exposure can occur with any type of intimate sexual contact**
- **Intercourse is not necessary to become infected**
- **Nearly 50% of high school students have already engaged in sexual (vaginal-penile) intercourse**
- **24% of high school seniors have had sexual intercourse with 4 or more partners**



HPV is found in virgins

- ➡ **Study examined the frequency of vaginal HPV and the association with non-coital sexual behavior**
- ➡ **HPV was detected in 46% of women prior to first vaginal sex**
- ➡ **70% of these women reported non-coital behaviors that may in part explain genital transmission**

زگیلهای تناسلی...

- ▶ دوره کمون بیماری در حدود 3 ماه است. میزان سرایت بیماری در حدود 25-60% است.
- ▶ زگیلهای تناسلی رشد اگزوفیتیک دارند و ضایعاتی برآمده، صورتی مایل به سفید هستند.
- ▶ گاهی مواقع به هم می پیوندند و توده گل شکمی را ایجاد می کنند.
- ▶ این ضایعات دردناک نبوده ولی ممکن است خارش داشته باشند.



زگیلهای تناسلی...

- هر قسمتی از ولو ممکن است گرفتار شود، مونس پوبیس، فورشت، واژن، سرویکس و اطراف مقعد و...
- رشد زگیلهای تناسلی بسته به **حرارت، رطوبت، تعداد، نوع و سن فرد** متغیر است.
- در **افراد دیابتی** و در افراد با **سیستم ایمنی ضعیف** احتمال رشد زیاد این زگیلها بیشتر است و در **دوران بارداری** تحت تاثیر تغییرات هورمونی رشد زگیلها افزایش قابل توجهی می یابد.

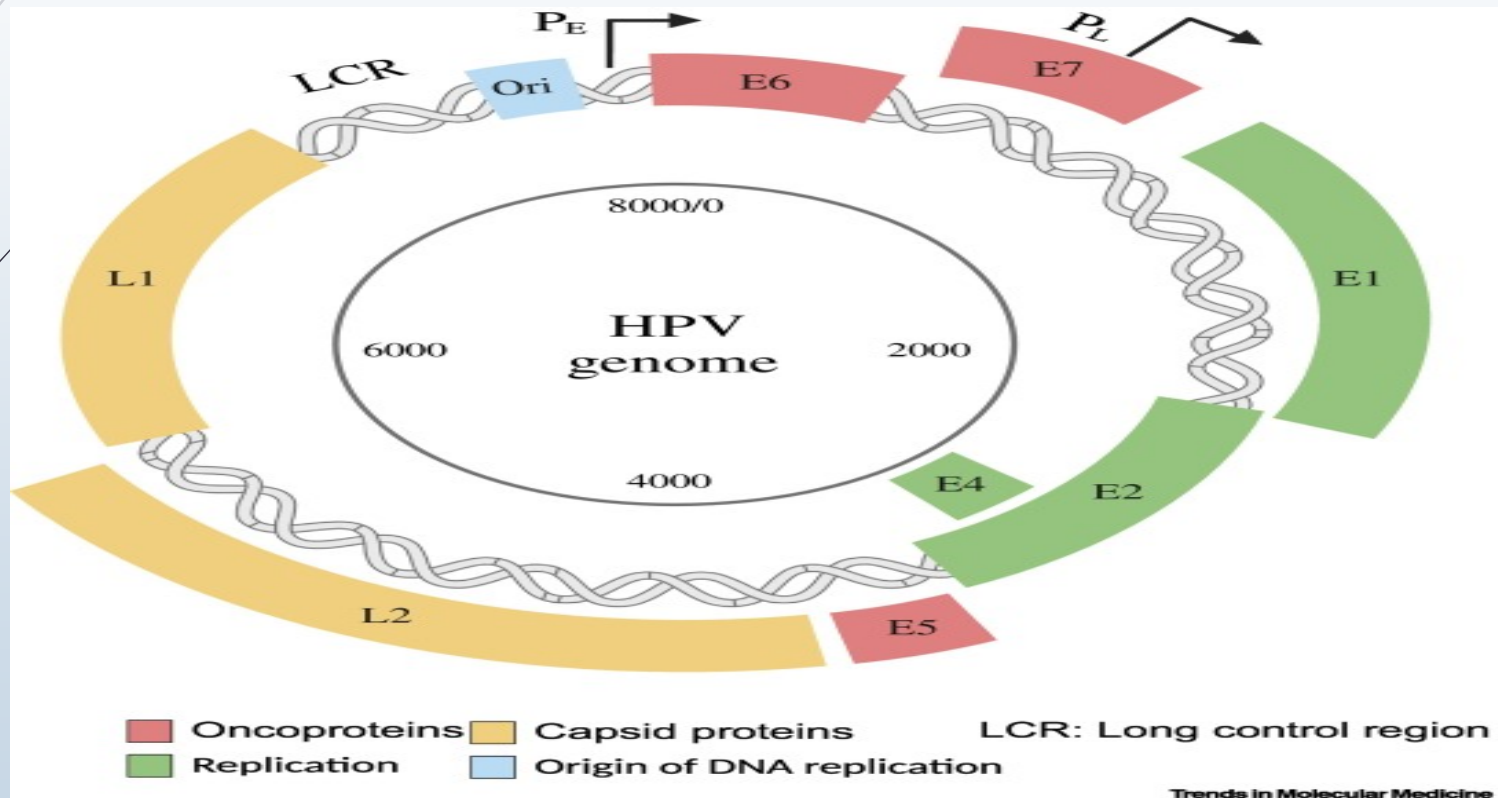


Molecular biology of HPV

- HPV infection is considered the main driver of oncogenesis in the cervix. HPV is a non-enveloped DNA virus with a double-stranded genome containing ~8000 base pairs .
- More than **400 HPV genotypes** in the *Papillomaviridae* family have been identified to date, which have been categorized into the five genera *Alpha*, *Beta*, *Gamma*, *Mu*, and *Nu*
- Of particular interest are the **Alpha HPVs** because of their significant contribution to oncogenesis, in which the oncogenicity varies per genotype.

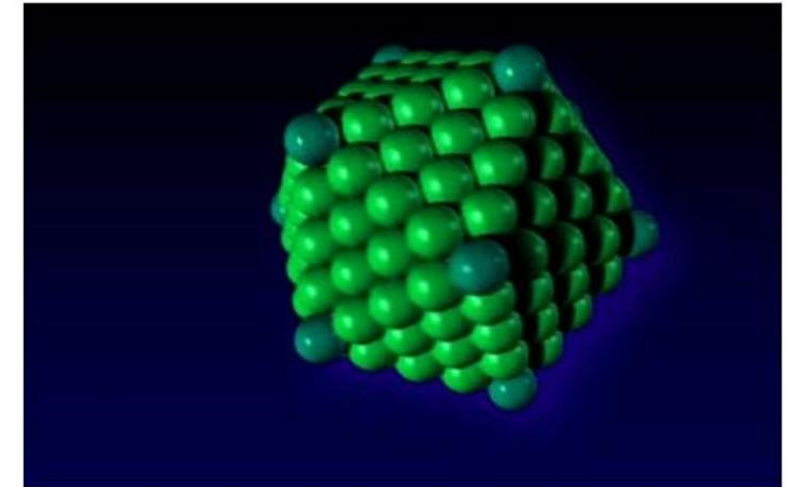
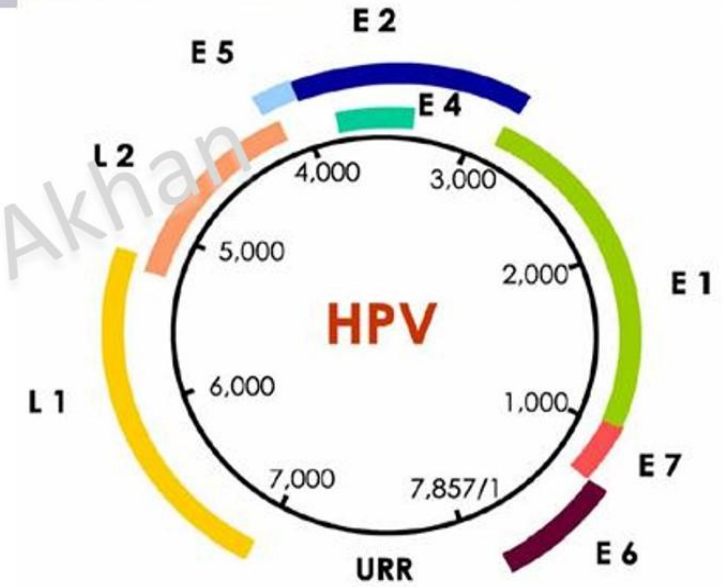
- ژنوم HPV از سه ناحیه اصلی تشکیل شده است.
- **LCR** یا ناحیه تنظیم کننده بالادستی است و نقش مهمی در تنظیم تکثیر ویروسی و رونویسی DNA ویروسی دارد.
- دو ناحیه دیگر، اوایل و اواخر، هشت فریم خواندن باز (ORFs) را برای پروتئین‌های مختلف، از جمله شش ORF اولیه و دو ORF دیررس، رمزگذاری می‌کنند.
- ژن‌های اولیه HPV E1، E2، E4، E5، E6 و E7 هستند.
- **E1 و E2** فاکتورهای همانندسازی هستند، در حالی که E4، E5، E6 و E7 پروتئین‌های کمکی هستند.
- ORF‌های متأخر L1 و L2 هستند که هر دو پروتئین‌های کپسید ویروسی را کد می‌کنند.


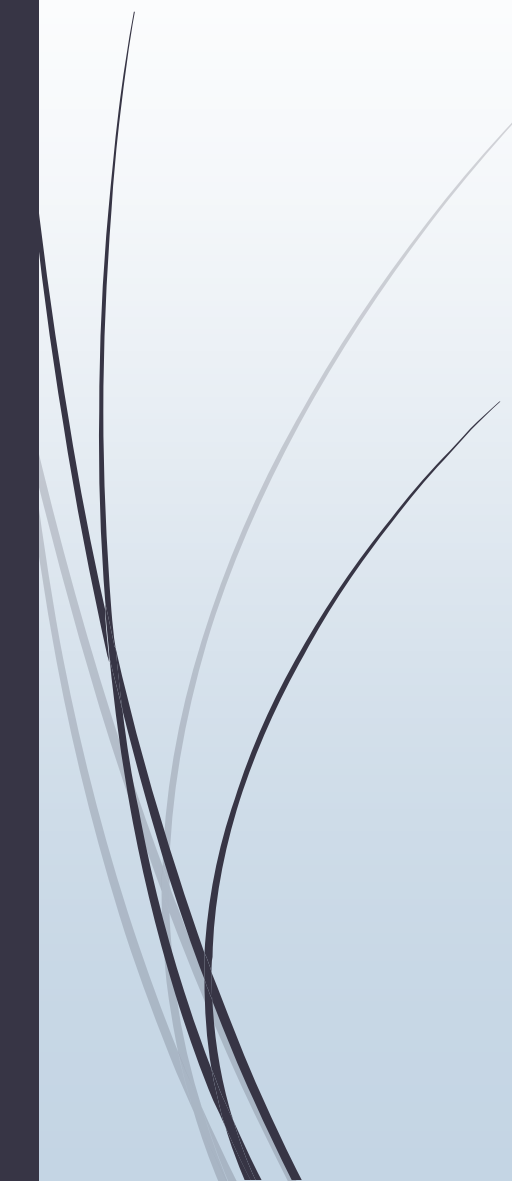
HPV genome



HPV işlev Proteini

E1-E2	Viral Replikasyon, Viral epizomun stabilitesi, transkripsiyonel kontrol
E4	Sitoplazmada sitokeratin matriksi parçaları . Böylece HPV'ye ait yeni oluşmuş virionlar sitoplazmada serbestçe dolaşır ve hücreden salınır.
E5	Hücre membranında EGF veya PDGF reseptörlerini taklit ederek virüsün hücreye bağlanmasını kolaylaştırır
E6	Onkojenik alt-tiplerde " p53 supresör gen "e bağlanır ve inaktive eder.
E7	İlk bulunan Tümör süpr. gen olan " Retinoblastona Gen "e bağlanır ve inaktive eder.
L1-L2	Viral DNA'nın hücre içine alınmasında hücre zarındaki reseptörler ile iletişime girerek rol alır



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- 
- HPV genotypes have also been categorized into high-risk (hrHPV) or low-risk (lrHPV) groups.
 - This classification is based on their oncogenic potential or disease association.
 - hrHPVs are associated with cancer, while lrHPVs cause benign lesions. The hrHPV genotypes **16, 18, 31, 33, 35, 39, 45, 51, 52, 56, 58, 59, 66, and 68** are defined by the World Health Organization (WHO) as cancer-causing types
 - From these hrHPV genotypes, types 16 and 18 are responsible for more than 70% of global cervical cancer cases.

- In reproductive-age women, the chances of being infected within the first year of sexual intercourse is 20% and an overall 80% throughout their lifetime.
- HPV mainly resides in the stratified epithelia, where the virus exploits the mechanism of tissue renewal to complete its life cycle. When HPV has replicated and expressed its oncoproteins, it can persist and integrate into the host genome.



Incubation period

- *(time between becoming infected and developing symptoms)*
- 2 to 3 months, with a range of 1 to 20 months for genital warts.
- It can take up to 10 years for a high-risk HPV infection to develop into cancer.

➤ **%80-10-3**

HPV Life Cycle

- چرخه زندگی HPV ارتباط تنگاتنگی با وضعیت تمایز کراتینوسیت سلول میزبان دارد و با سه مرحله تکثیر مجزا مشخص می شود
- HPV های پرخطر و کم خطر با دستیابی به سلول های بازال در حال تکثیر اپیتلیوم طبقه بندی شده از طریق میکروزخم، عفونت را آغاز می کنند.
- پس از ورود، HPV تحت یک دور گذرا از تکثیر به نام "**تکثیر تاسیس**" که منجر به تعداد کپی از 100-50 ژنوم ویروسی در هر سلول می شود.
- تنها پس از تمایز اپیتلیال، مرحله تولیدی چرخه حیات ویروسی فعال می شود، که منجر به تکثیر ژنوم های ویروسی به هزاران نسخه ویروسی در هر سلول در لایه های فوق بازال، و همچنین فعال سازی بیان ژن دیررس و مونتاژ ویروس می شود.
- تنظیم چرخه زندگی ویروسی به این روش به HPV اجازه می دهد تا از تشخیص توسط پاسخ ایمنی جلوگیری کند زیرا سطوح بالای بیان ژن ویروسی و همچنین تولید ویرون به بالاترین لایه های اپیتلیوم محدود می شود که تحت نظارت ایمنی نیستند.

اولین مرحله از چرخه تکثیر HPV، به نام "تکثیر تاسیس"، شامل حفظ تعداد ثابتی از نسخه های اپیزومی است.

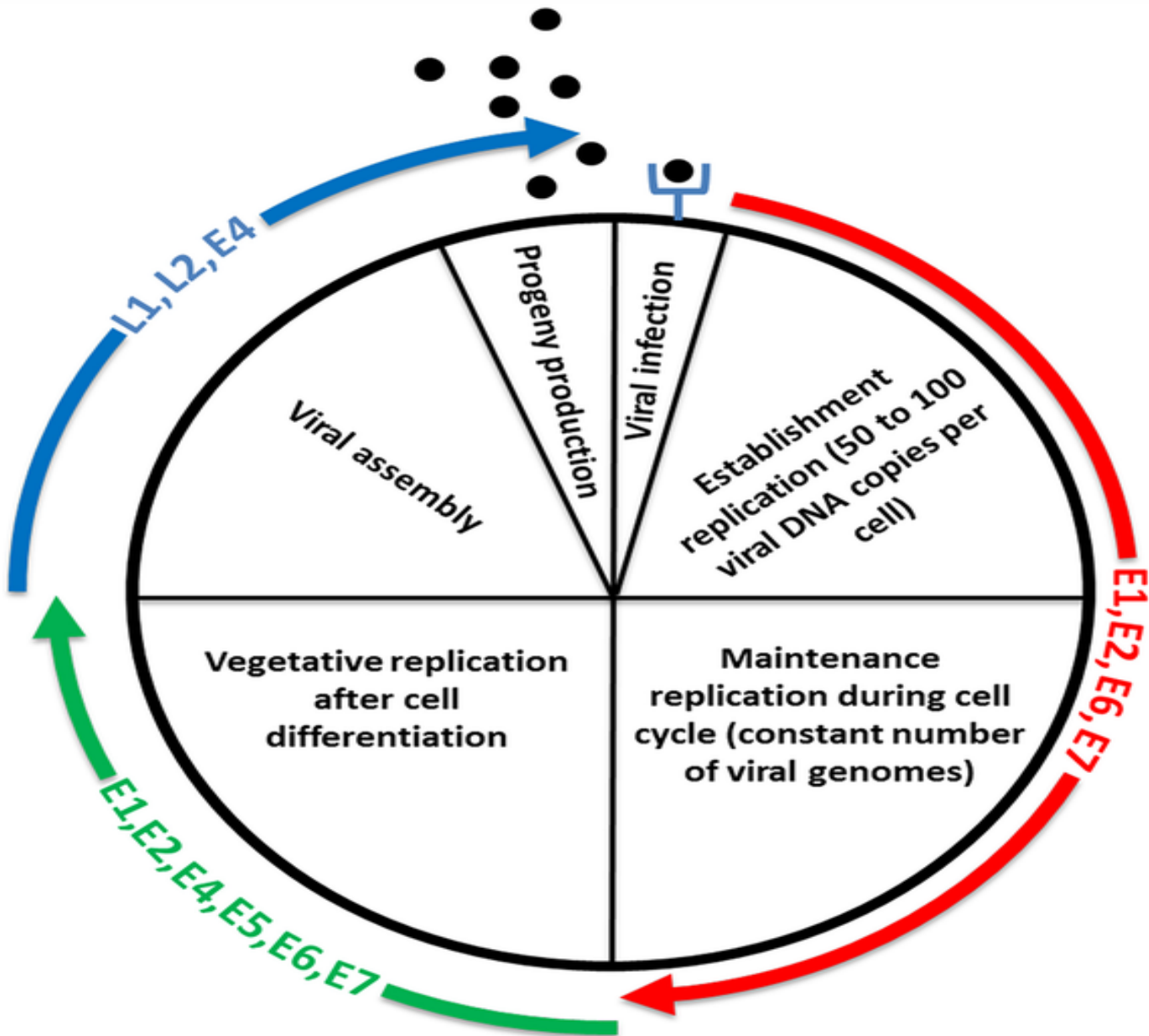
تکثیر DNA ویروسی به دستگاه تکثیر DNA میزبان متکی است و توسط پروتئین های اولیه ویروسی E1 و E2 پشتیبانی می شود.

پس از این مرحله اولیه، مرحله تعمیر و نگهداری آغاز می شود. این مرحله شامل ایجاد شرایط برای حفظ تعداد ثابتی از ژنوم های ویروسی در هسته سلول های پایه تمایز نیافته به عنوان یک ژنوم خارج کروموزومی برای ایجاد عفونت پایدار است.

علاوه بر E1 و E2، انکوپروتئین های E6 و/یا E7 برای حفظ اپیزومی پایدار HPV مورد نیاز هستند.

پس از تمایز سلولی در اپیتلیوم طبقه بندی شده، تکثیر رویشی یا مولد ویروس آغاز می شود و متعاقباً تولید ویرون ها آغاز می شود. در اینجا، انکوپروتئین های E6 و E7 که در سطوح نسبتاً کم در سلول های تمایز یافته بیان می شوند، **با غیرفعال کردن پروتئین های سرکوبگر تومور**، نقش کلیدی دارند.

- فعال شدن در سلول های اپیتلیال تمایز یافته پروموتر دیررس، واقع در ناحیه E7، منجر به تولید سطوح بالایی از پروتئین های ویروسی E1 و E2 می شود که برای اطمینان از تکثیر DNA ویروسی لازم است.
- E4 و E5 به تکثیر مولد کارآمد کمک می کنند.
- پروتئین های کپسید L1 و L2 از پروموتر متأخر بیان می شوند و در محصور کردن ژنوم های تازه تکثیر شده نقش دارند و در نتیجه در لایه های سطحی در طول لایه برداری، ویریون آزاد می شوند.
- E4 همچنین با تعامل با شبکه کراتین در این مرحله از چرخه حیات ویروسی نقش دارد.



Persistent HPV infection



Integration of viral DNA



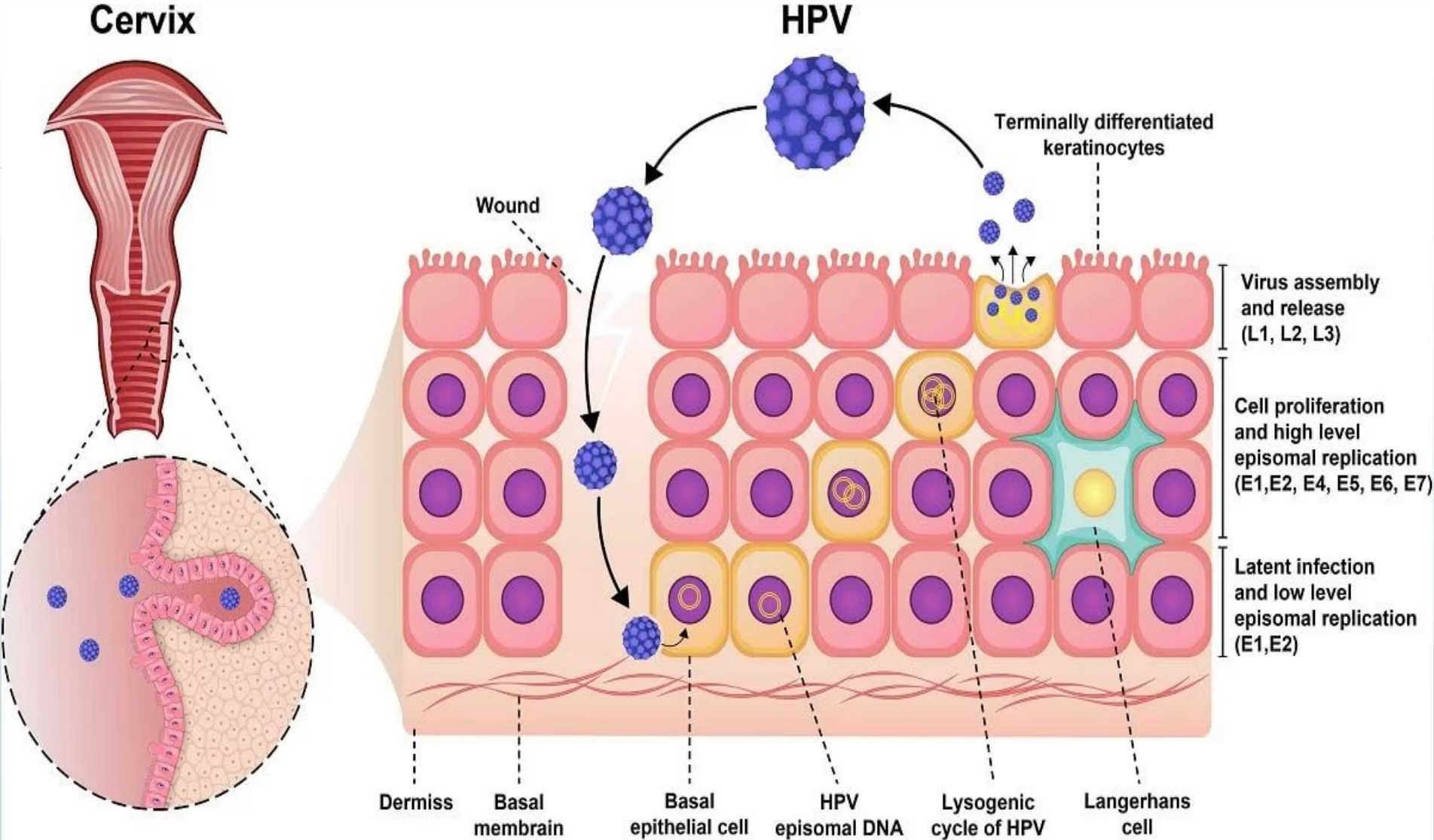
Loss of E2 repression function

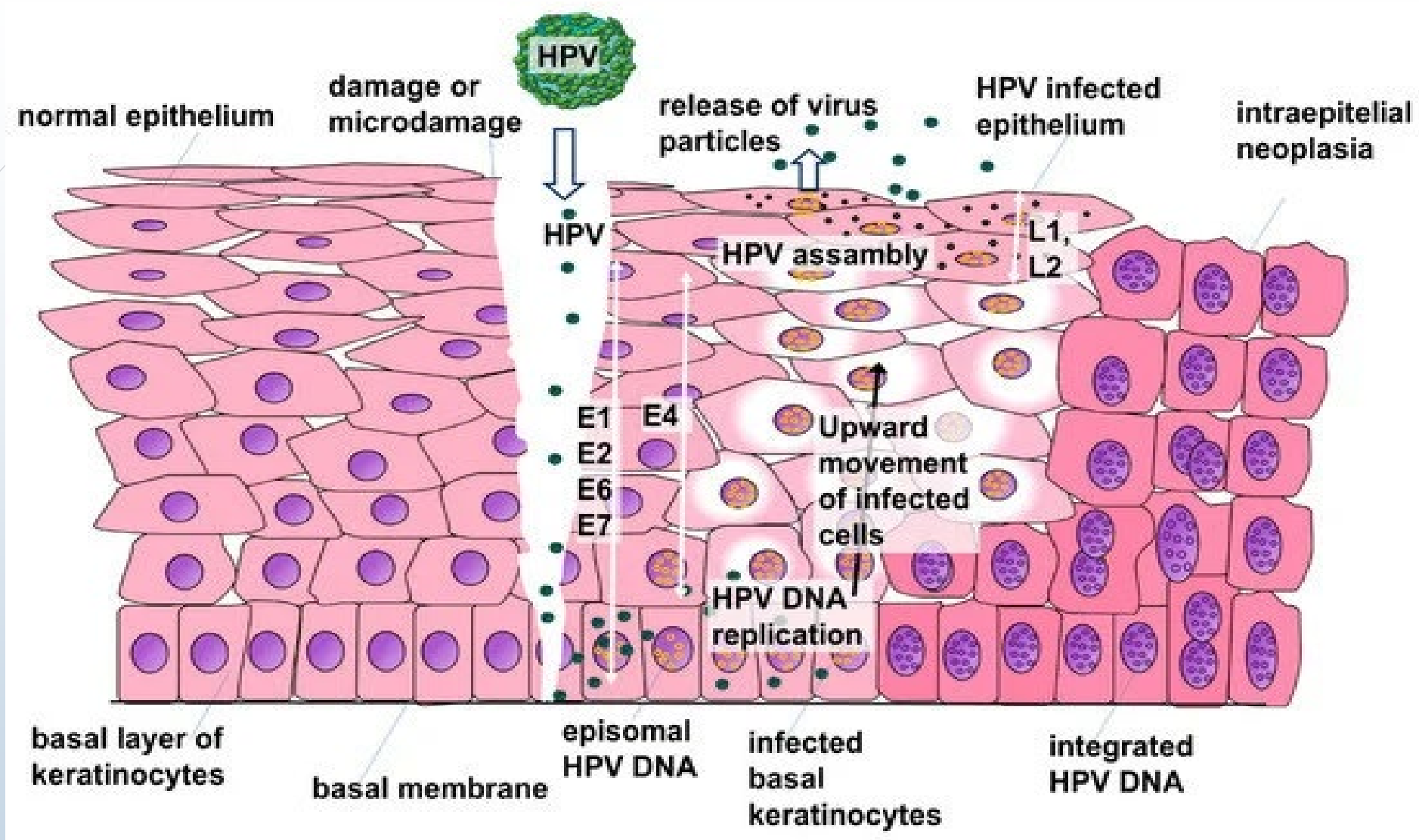


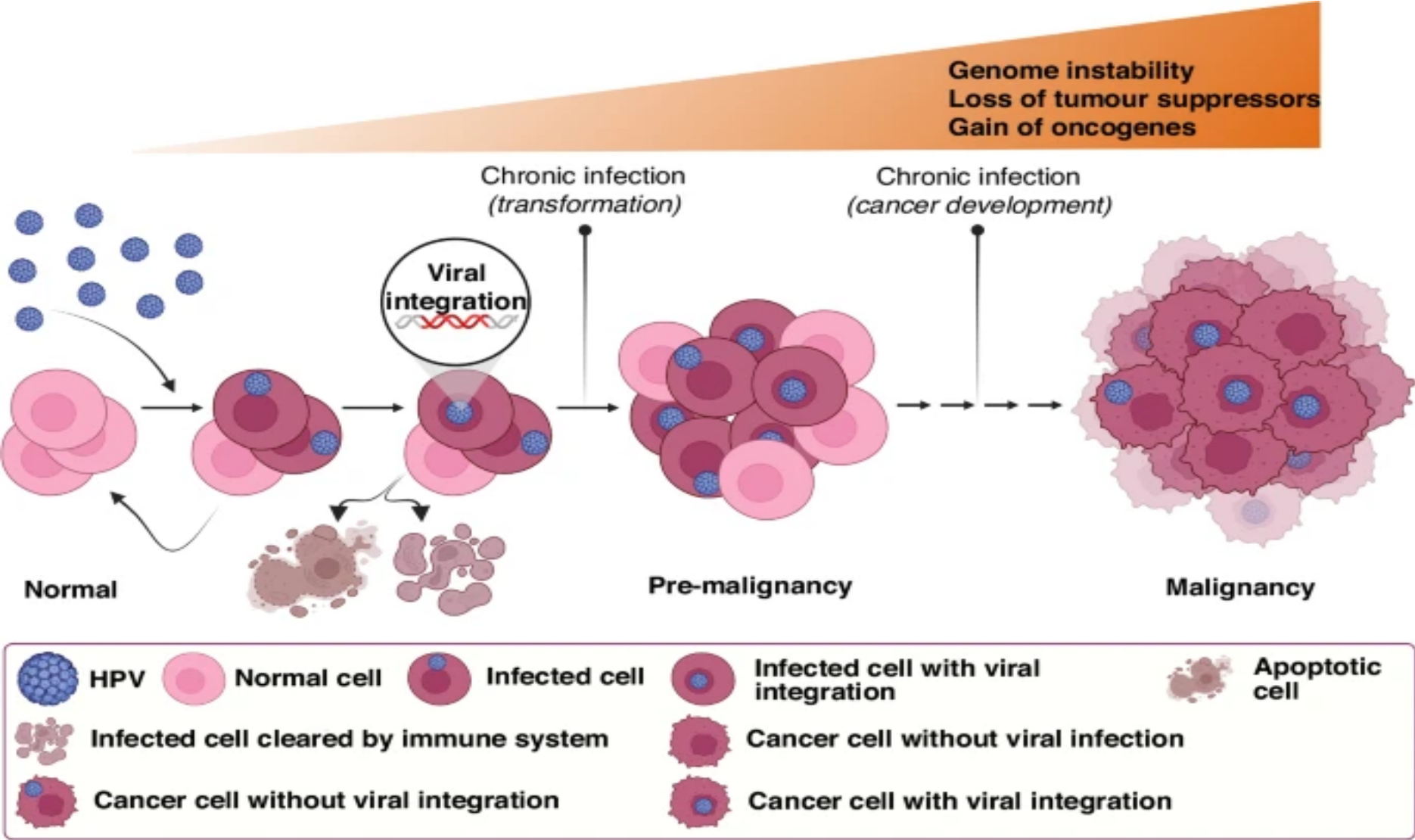
E6 and E7 upregulation



Keratinocyte transformation









How long does HPV last in your system?

- ➡ You can have HPV for a long time without ever knowing it.
- ➡ HPV can stay in the body for 10-20 years.

Can you get HPV off of surfaces?



Overall, most transmission is from person to person during physical contact, so the risk of being infected by HPV from a virus living on a surface is relatively small.

Fomites such as **wet towels** are thought to be responsible for some cases of HPV in children.

Does HPV stay on objects?

- **SURVIVAL OUTSIDE HOST:** HPV is resistant to heat and drying, and is able to survive on inanimate objects such as clothing and laboratory equipment that have come in contact with infected patients, although the precise survival time is unknown.



Can HPV live on toys?

- In this small-scale study, the researchers found that HPV could be detected on some vibrators even 24 hours after conventional cleaning.



What temperature kills the HPV virus?

- Incubation of the virus for 1 h at a temperature higher than 56 degrees C but lower than 72 degrees C was sufficient to inhibit the virally induced growth of infected human tissue.
- However, 100 degrees C was necessary to completely inactivate HPV type 11 genome expression.



How long can men carry HPV?

- ▶ Lifetime **number of sexual partners** was the most significant risk factor for the acquisition of HPV infection ($P < 0.05$).
- ▶ Genital HPV infections may be less likely to persist in men than in women; in men, the median time to clearance of any HPV infection was **5.9 months**, with 75% of infections clearing within **12 months**.



Does HPV affect blood count?

- observed that women with HPV-induced cervical lesions had lower levels of peripheral blood CD4 + T cells and CD4/CD8 ratios, as well as increased CD8 + T-cell counts [13].
- Lazarenko et al. found similar trends in the decrease in CD4 + T cells and CD4/CD8 ratios but no significant changes in CD8 + T-cell counts [14]



What vitamins help clear HPV?

- ▶ **Folic acid and vitamin B12** are essential vitamins for multiple functions in the body, and accumulating evidence suggests their importance in maintaining a high degree of methylation of the HPV genome, thus decreasing the likelihood of causing malignant lesions.



دیکته، جزو شکل دارویی (۱)

در مطالعه داروشناسی، هنگامی که پزشک با بیمار یا بیمارستان در ارتباط است، باید به صورت دقیق و منظم، تمام جزئیات مربوط به بیمار را یادداشت کند.

Amp. Hys 20mg
Tab. Loraz 1mg
Tab. Dinec
Amp. Gen 80mg
Tab. Val 160mg
Dint. Calca
Tab. Fes 180mg

Handwritten notes in Persian: 'فردی', 'Neptadine', 'Aivonast 10', 'topdro', 'Amp. M', 'Hydro', 'Dime 4h', 'Dime', '30-60-90-120'.

تکنیک های داروشناسی | داود وکیلی

کد را
اسکن
کنید



<https://iehe.ir/1091>

نسخه پیج برتر

بیش از ۸ ساعت ویدئوی آموزشی شامل مقدمات و تکنیک ها
جزوه های داروشناسی به همراه تکنیک های پیشرفته
جزوه ویژه و اختصاصی داروشناسی پلاس
بیش از ۲۰۰۰ نمونه نسخه داروخانه دارای راهنما و ...

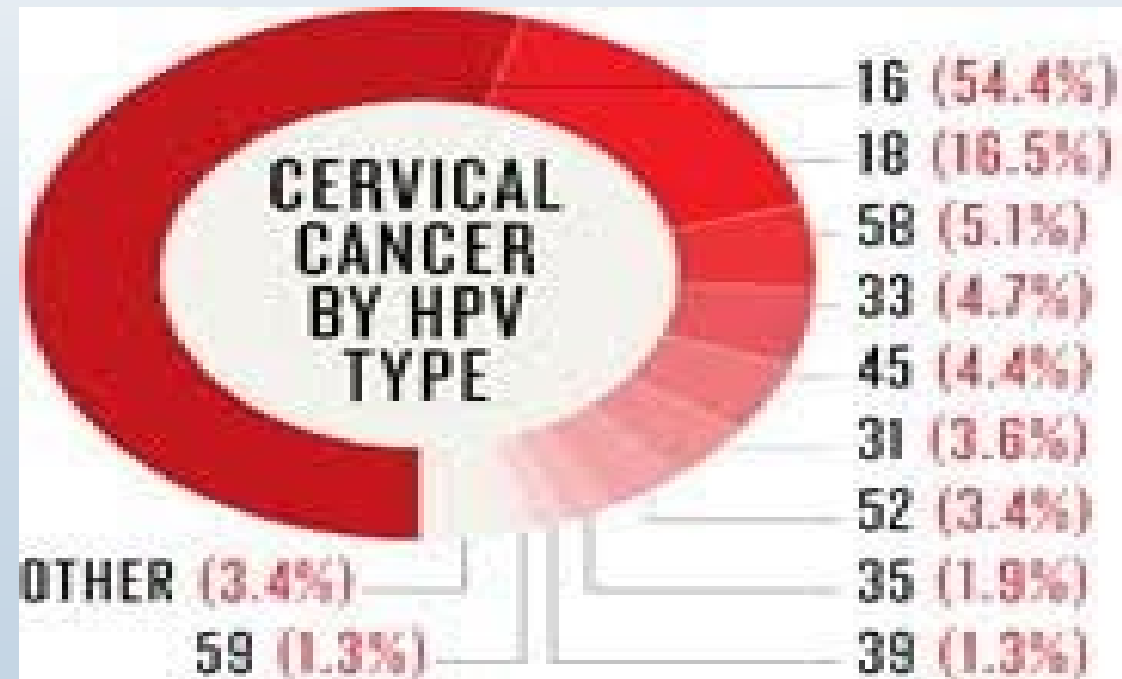
What to eat to fight HPV?

- ▶ A diet that is high in **antioxidants, carotenoids, flavonoids and folate** – all of which are found in fruits and vegetables – can help the body fight off HPV and also prevent an HPV infection from transforming cervical cells into cancerous lesions.



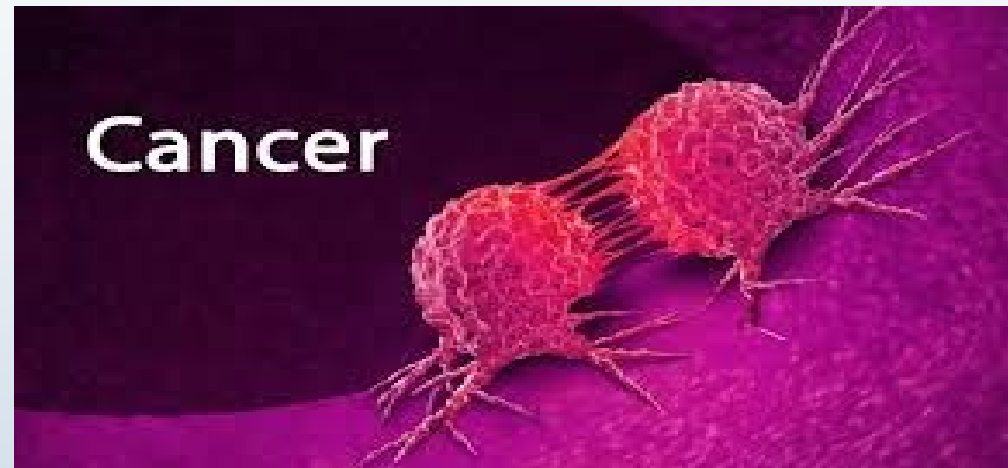
What is the global burden of HPV associated cancers?

- 4.5% of all cancers worldwide (630,000 new cancer cases per year) are attributable to HPV: 8.6% in women and 0.8% in men.



Cancers Linked with HPV

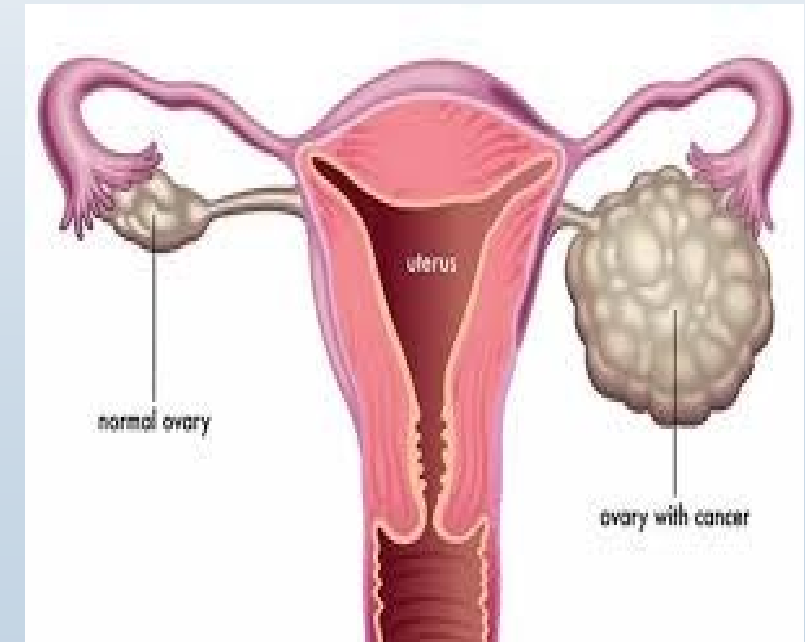
➡ mouth
throat,
cervix,
vulva,
vagina,
penis, and anus.



More than 37,000 people get HPV-related cancers in the United States every year.

Does HPV affect the ovaries?

- ▶ The prevalence of HPV-16 infection in ovarian cancers is much higher than in nonmalignant ovarian tissues, suggesting that HPV-16 infection may play a role in the development of ovarian cancer. However, large case-control studies need to be conducted before reaching a conclusion.



Cervical Cancer

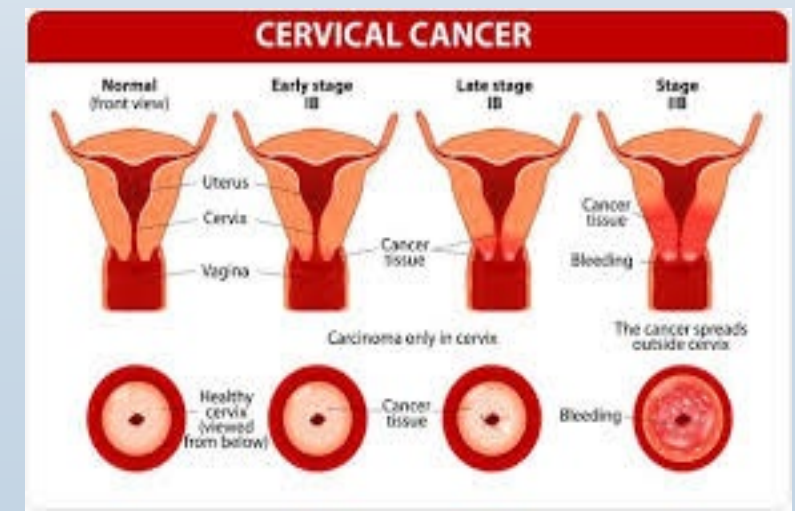
- ➡ Cervical cancer is the most common HPV-associated cancer among women
 - ➡ 500,000+ new cases and 275,000 attributable deaths world-wide in 2022
 - ➡ 12,000+ new cases and 4,000 attributable deaths in 2022 in the U.S.
- ➡ 25.9% cervical cancers occur in women who are between the ages of 35 and 44
 - ➡ 14% between 20 and 34
 - ➡ 23.9% between 45 and 54

HPV-Associated Oropharyngeal Cancers

- ➡ Prevalence increased from 16.3% to 71.7%
- ➡ Population-level incidence of HPV-positive cancers increased by 225% while HPV-negative cancers declined by 50%

Cervical cancer is the most common cancer linked to HPV in people with a cervix.

In fact, nearly all cervical cancers are caused by HPV. **Cervical cancer is preventable with the HPV vaccine and regular screening tests.**



Vulvar cancer

- HPV can cause cancer of the vulva.
- The vulva is the outer part of the female genital organs.
- This cancer is much less common than cervical cancer.
- There's no standard screening test for cancer of the vulva.



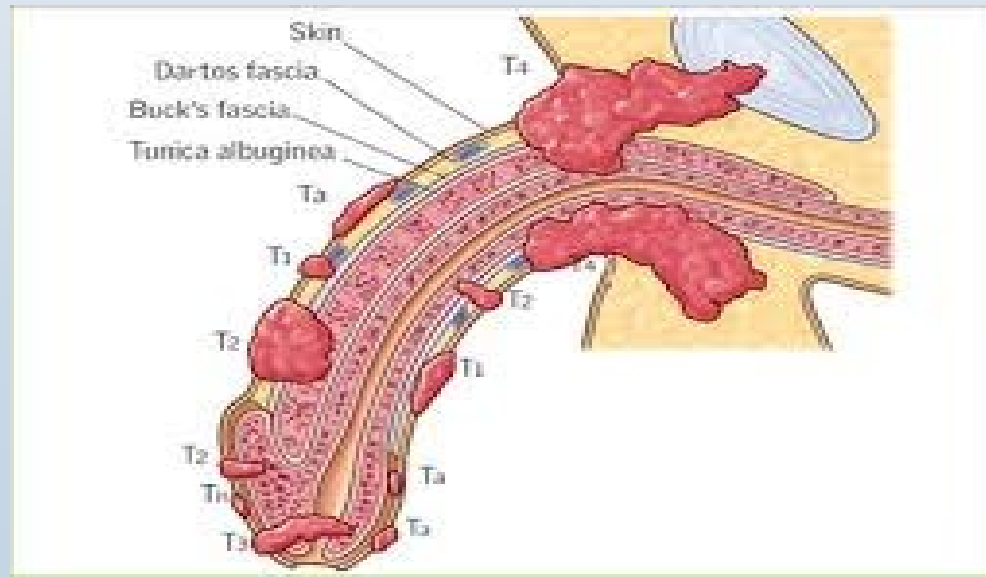
Vaginal cancer

- Most cancers of the vagina contain HPV.
- Many vaginal pre-cancers also contain HPV, and these changes may be present for years before turning into cancer. These pre-cancers can sometimes be found with the same screening test that's used to test for cervical cancer and pre-cancers.



Penile cancer

- ▶ HPV can cause cancer of the penis. Penile cancer is more common in men with HIV and those who have had sex with other men.
- ▶ There's no standard screening test to find early signs of penile cancer.



Mouth and throat cancer

- ▶ HPV is found in many oral (mouth) and throat cancers. Most cancers found in the part of the throat behind the mouth are HPV-related. These are the most common HPV-related cancers in men.
- ▶ There's no standard screening test to find these cancers early. Still, some can be found early during routine exams by a dentist, doctor, or dental hygienist, or by doing self-checks.



HPV در مردان

HPV سر و گردن، مهم‌ترین بیماری غیرنئوپلاستیک پاپیلوماتوز تنفسی راجعه (RRP) است. نیمی از موارد کارسینوم سلول سنگفرشی سر و گردن در ایالات متحده ناشی از عفونت با HPV پرخطر است. شیوع HPV بالا، بین 50 تا 70 درصد، در ساقه آلت تناسلی مردانه، آلت تناسلی/شیار تاجی، مایع منی و همچنین در نواحی اسکروتوم، پری آنال و مقعد توصیف شده است.

HPV در مردان

- علاوه بر این، در بیماران مرد، عفونت HPV، در میان سایر بیماری ها، با سرطان آلت تناسلی مرتبط است.
- عفونت اسپرم HPV در حدود 10٪ در مردان از جمعیت عمومی و حدود 16٪ در مردان با ناباروری غیرقابل توضیح گزارش شده است.
- به طور خاص، عفونت اسپرم HPV به نظر می رسد که بیشتر مربوط به آستنوزواسپرمی و آنتی بادی های ضد اسپرم باشد.

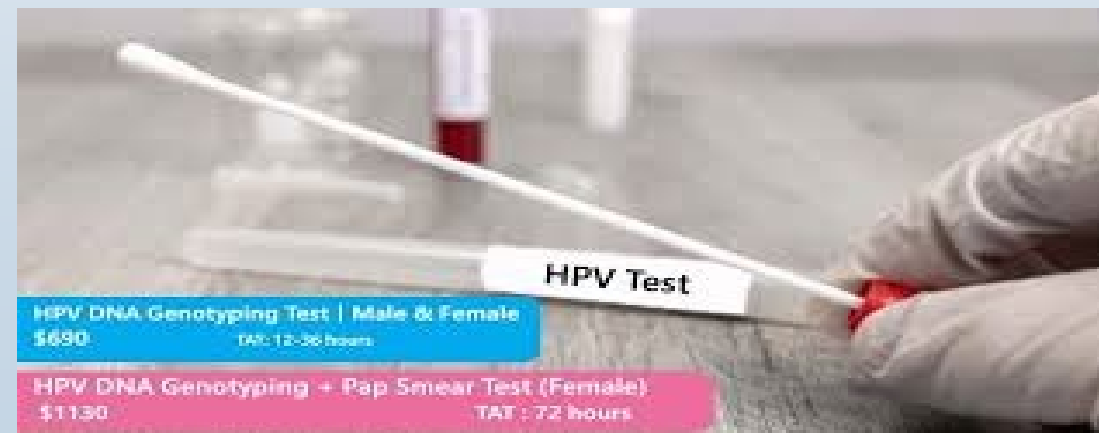


Anal cancer

- ▶ HPV can cause cancer of the anus in both men and women. Anal cancer is more common in people with HIV and in men who have sex with other men.
- ▶ Screening tests for anal cancer are not recommended routinely for everyone.
- ▶ Some experts recommend anal cytology testing (also called an **anal Pap test**) for people at higher risk of anal cancer.
- ▶ This includes men who have had sex with men, people who have had cervical cancer or vulvar cancer, or anyone who may have a compromised immune system (ie. HIV-positive, anyone who has had an organ transplant).

Tests for HPV in men

- Unfortunately, there is no test HPV test specifically for men.
- Unlike women, who can be screened for HPV through a Pap smear or HPV DNA test, men do not have a standardized test to detect HPV.
- For men, HPV is usually diagnosed if visible symptoms, such as genital warts, are present.



Can urine test detect HPV in males?

- It is estimated that 80% of all sexually active individuals will contract HPV at some point in their life.
- The HPV Test is a qualitative in vitro test for the detection of the Human Papillomavirus using a urine specimen for males.
- Urine is collected following kit instructions in the privacy of your own home.

How do men test for oral HPV?

- There is no test that can find the first signs of oral HPV.
- Your healthcare provider may find oral HPV lesions during routine screenings or exams.
- But, most of the time, testing only confirms the virus is present in people who already have symptoms.



Human papilloma virus and **breast cancer**: the role of inflammation and viral expressed proteins

- It has been shown that at least a few types of HPV such as 6, 11, 15, 16, 18, and 33 are related to breast cancer .
- Almost half of women with a history of HPV-16-positive high-grade cervical lesions showed correlations with HPV DNA presence in diagnosed breast cancer



تغییرات مولکولی در شروع ممکن است از طریق یک مکانیسم "Hit and Run" رخ دهد. این نظریه پیشنهاد می کند که HPV شروع کننده یا به توسعه سرطان کمک می کند، اما در برخی موارد از سلول های تومور (احتمالاً به دلیل نظارت ایمنی) قبل از تشخیص بیماری ناپدید می شود. نقش احتمالی HPV به عنوان یک واسطه یا کوفاکتور در یک رابطه علی هنوز باید توسط تحقیقات آینده مشخص شود.

کد را
اسکن
کنید



کتاب
PDF

آموزش دستیار دندانپزشکی
تالیف دکتر نگین واعظی
DentalMed.ir



<https://dentalmed.ir/product/dental-assistant-learning>

HPV and Breast cancer

- ▶ همچنین این احتمال وجود دارد که HPV بتواند به صورت هم افزایی با مسیر سیگنال دهی گیرنده استروژن ER عمل کند.
- ▶ به طور خاص، وو و همکاران نشان داد که پروتئین E2 با فعال کننده های گیرنده هسته ای به منظور افزایش فعالیت رونویسی وابسته به ERE ERα همکاری می کند.
- ▶ بنابراین، سیگنال دهی بالای استروژن ناشی از بیان بیش از حد ژن ER ممکن است به بیان بیش از حد ژن های HPV E6 و E7 در سلول های BC مثبت HPV کمک کند و در نتیجه توسعه و پیشرفت بیماری را افزایش دهد.

HPV and Breast cancer

- HPV در موارد سرطان پستان بیشتر از نمونه های معمولی دیده می شود.
- قرار گرفتن در معرض HPV باید قبل از بروز بیماری باشد.
- تحقیقات چند رشته ای باید برای تکرار ارتباط بین HPV و سرطان سینه انجام شود.
- یک رابطه دوز-پاسخ باید بین سطوح قرار گرفتن در معرض ویروس و بروز BC وجود داشته باشد.
- این ویروس می تواند اپیتلیوم پستان را آلوده کرده و در مدل حیوانی سرطان ایجاد کند.
- پیشگیری از عفونت HPV باید بروز سرطان دهانه رحم و پستان را کاهش دهد.

Maternal HPV Infection: Effects on Pregnancy Outcome, 2021

- including preterm birth,
- miscarriage,
- pregnancy-induced hypertensive disorders (PIHD),
- intrauterine growth restriction (IUGR),
- low birth weight,
- the premature rupture of membranes (PROM),
- and fetal death.





Maternal HPV



- ▶ HPV Infection is not an indication for caesarean delivery as this has not been shown to prevent vertical transmission.
- ▶ For those diagnosed at routine cervical cancer screening, management should follow guidelines for cervical cancer screening in pregnancy.
- ▶ Vaccination is currently not recommended for pregnant women, although studies on those inadvertently vaccinated in pregnancy have not shown any adverse effects on either the fetus or mother.

The HPV-DNA Test in Pregnancy: A Review of the Literature(2023 May).

- Hence, the Papanicolaou smear (Pap smear) is still the first-line diagnostic tool and colposcopy-guided cervical biopsy is the "gold standard" method for the management of cervical intraepithelial neoplasia (CIN) treatment during pregnancy.
- No HPV test for men has been approved by the FDA.

HPV and Infertility

- HPV is often not mentioned as a primary or common cause of infertility, but many sexually transmitted infections can make it harder to get pregnant, and that may include HPV. This can happen when a man or a woman has an HPV infection.
- in a review, it was concluded that HPV is associated with abnormalities in fertility and ART outcomes [8].
- Another study revealed HPV-positive women were six times less likely to become pregnant after IUI [9].
- Other studies found the detection of HPV at the time of fertility treatment has been adversely affected IVF outcomes (lower pregnancy rates and increased risk of early pregnancy loss)

TABLE

USPSTF cervical cancer screening recommendations²

Age (years)	Recommendation
<21	No screening
21-29	Screen with cytology every 3 years, with reflex HPV testing if ASCUS is detected
30-65	Screen with a combination of cytology and HPV testing every 5 years (cytology every 3 years is an acceptable option)
>65	Discontinue screening

ASCUS, atypical squamous cells of undetermined significance; HPV, human papillomavirus; USPSTF, US Preventive Services Task Force.

Exceptions to the cervical cancer screening guidelines

- Your health care provider may recommend more frequent screening if you
- are HIV positive
- have a weakened immune system
- were exposed before birth to a medicine called diethylstilbestrol (DES), which was prescribed to some pregnant women through the mid 1970s
- had a recent abnormal cervical screening test or biopsy result
- have had cervical cancer



Cervical Cancer Screening

Patient Management

Extended Genotyping

BD Onclarity™ HPV Assay

Find a lab



How does it impact her to know if she is HPV 31-positive?

Every woman deserves to know if she is positive for HPV 31 because it could mean a different management for her.^{1,5} Following the American Society for Colposcopy and Cervical Pathology (ASCCP) principle of **“similar management for similar risk”**, women with an immediate risk for CIN3+ disease above 4% should be referred to colposcopy.⁵

In the [BD Onclarity™ FDA trial](#), women 25 years and older with **HPV 31 and normal cytology had an immediate risk for CIN3+ that exceeded the colposcopy referral threshold.**¹⁻⁵

This trial showed that being HPV 31-positive poses a higher risk for precancer as compared to HPV 18.¹

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Validation of a Human Papill... x chatgpt.com x onclarity typing test - Google x HPV 31 positive: meaning | E x Comparison of Onclarity Hu x +

womens-health-solutions.bd.com/cervical-cancer/bd-onclarity-hpv-assay/what-if-identifying-hpv-31-could-make-the-difference

www.sanjesh.org 176_317_Kelidphd8... دپیرخانه دائمی همای... https://mail.google... https://www.google... www.google.com Settings ثبت اطلاعات پیام رسان شاد پیام ها >>

BD Cervical Cancer Screening | Patient Management | Extended Genotyping | BD Onclarity™ HPV Assay Find a lab

Why does it matter?

HPV 16, 52, 51, 39, 59, and 31 are the **most common genotypes** in US women with normal cytology (in order of prevalence)⁴

HPV 16, 31, 52, 51, 18 and 58 are the genotypes most frequently associated with **high-grade cervical lesions** in the US (in order of prevalence)⁴

HPV


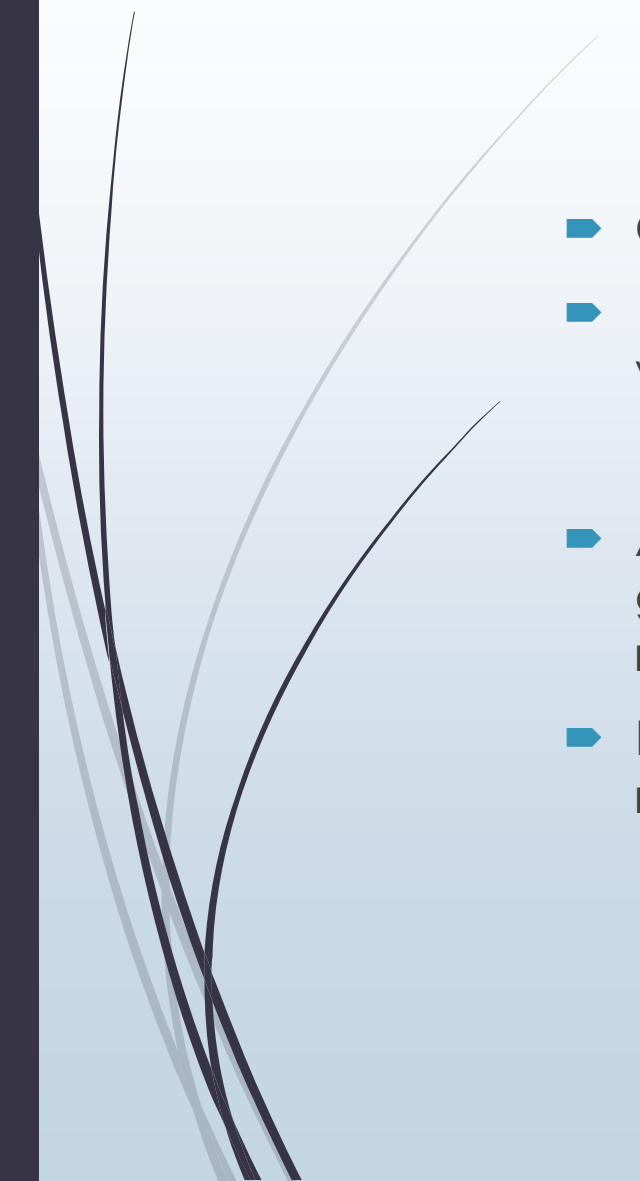
This means that the proportion of **HPV 31** is **increased in women with precancerous lesions** compared to women with normal cytology, and that **HPV 31 is more frequent than HPV 18** in precancer.⁴

If you were able to identify women who test positive for HPV 31, you could adapt your clinical decisions in light of the risk associated with this genotype.^{1,5}

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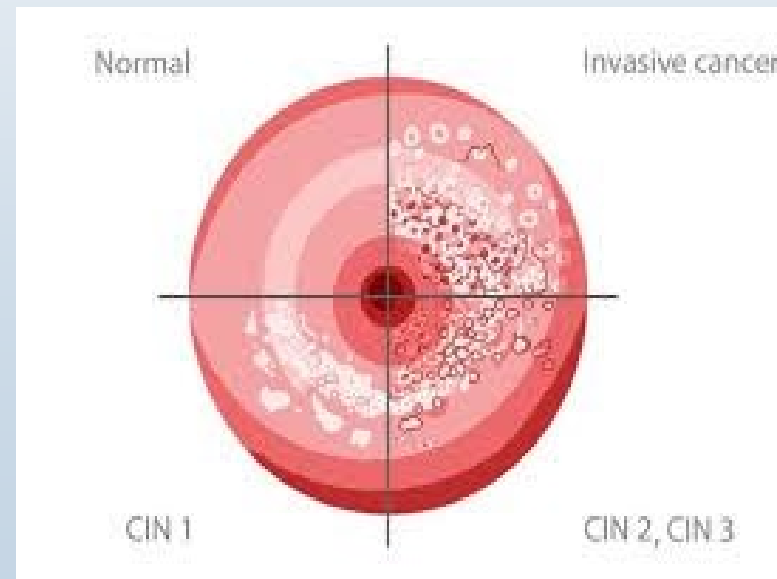
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- 
- 
- Cervicovaginal HPV testing is 90% sensitive for detecting precancer.
 - In the general population, the risk of precancer is less than 0.15% over 5 years following a negative HPV test result.
 - Among people with a positive HPV test result, a combination of HPV genotyping and cervical cytology (Papanicolaou testing) can identify the risk of precancer.
 - For people with current precancer risks of less than 4%, repeat HPV testing is recommended in 1, 3, or 5 years depending on 5-year precancer risk.

■ برای افرادی که خطرات پیش سرطانی فعلی آنها بین 4 تا 24 درصد است، مانند افرادی که نتایج آزمایش سیتولوژی با درجه پایین (سلول های سنگفرشی غیر معمول با اهمیت نامشخص [ASC-US یا ضایعات داخل اپیتلیال سنگفرشی درجه پایین [LSIL و HPV مثبت دارند **کولپوسکوپی** توصیه می شود.

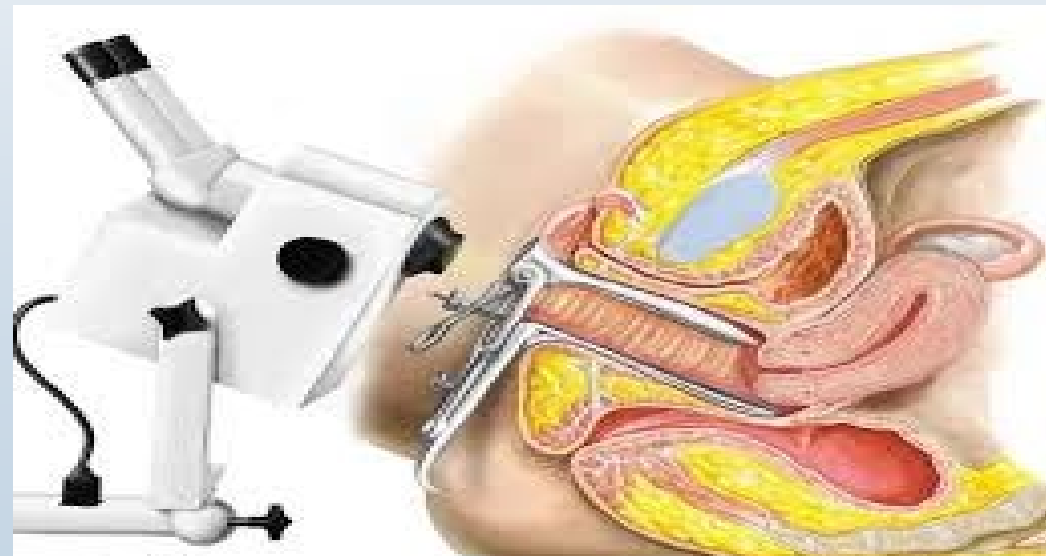
■ برای بیماران با خطرات پیش سرطانی کمتر از 25 درصد (به عنوان مثال، نئوپلازی داخل اپیتلیال گردن رحم درجه 1 [CIN1 یا LSIL بافت شناسی)، عوارض جانبی مرتبط با درمان، از جمله ارتباط احتمالی با زایمان زودرس، را می توان با تکرار کولپوسکوپی برای نظارت بر سلول های پیش سرطانی درمان های اکسیژونی راکاهش داد.



■ برای بیمارانی که خطرات پیش سرطانی فعلی آنها بین 25 تا 59 درصد است (به عنوان مثال، نتایج سیتولوژی با درجه بالا ASC نمی تواند ضایعه با درجه بالا [ASC-H] یا ضایعه داخل اپیتلیال سنگفرشی درجه بالا [HSIL] با نتایج تست HPV مثبت را رد کند)، درمان شامل **کولپوسکوپی با بیوپسی یا درمان اکسیژونی** است.

■ برای افرادی که خطرات پیش سرطانی فعلی آنها 60 درصد یا بیشتر است، مانند بیماران مبتلا به HSIL با HPV-16 مثبت، انجام مستقیم درمان اکسیژونی ترجیح داده می شود، اما انجام کولپوسکوپی ابتدا برای تأیید نیاز به درمان اکسیژونی قابل قبول است.

■ درمان‌های غیرجراحی ممکن است به نفع زنانی باشد که عفونت دهانه رحم hr-HPV یا بدون سیتولوژی غیرطبیعی خفیف مرتبط با hr-HPV داشتند.



Why is co-testing (Pap test plus HPV test) not recommended for women who are 21 to 29?

- ▶ HPV infection is common in this age group.
- ▶ These infections usually go away on their own within a few years and do not cause any lasting changes in cervical cells.
- ▶ Use of co-testing in women younger than 30 would mostly detect short-term HPV infections that would not lead to cancer. This testing would result in more frequent and unnecessary follow-up testing.

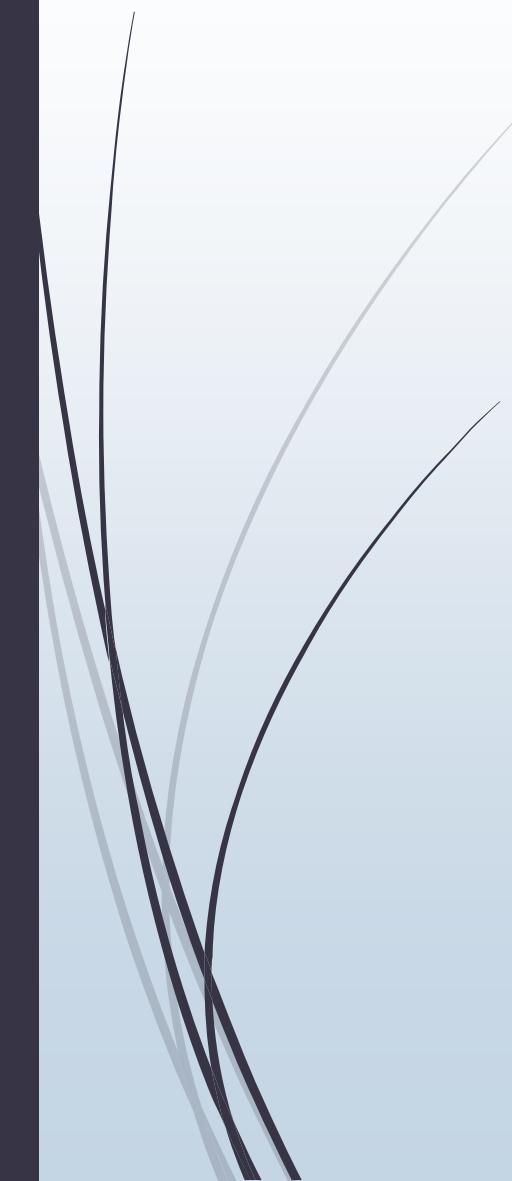


Follow-up tests and procedures after an abnormal Pap test (Pap smear) or HPV test

- Keep in mind that most people with abnormal cervical screening test results do not have cancer.
- your health care provider will consider additional factors when recommending follow-up care, including
 - previous screening test results
 - previous treatments for precancerous cervical cell changes
 - personal health factors, such as your age



Based on your individual risk of developing severe cervical cell changes that could become cervical cancer, you may be advised to:

- return for a repeat HPV test or HPV/Pap cotest in 1 or 3 years
 - have a colposcopy and biopsy
 - receive treatment;
- 

Biopsy findings: cervical intraepithelial neoplasia (CIN)

- CIN بر اساس میزان غیرطبیعی بودن سلول ها در زیر میکروسکوپ و میزان آسیب پذیری بافت دهانه رحم در مقیاس 1 تا 3 درجه بندی می شود.
- تغییرات SIL مشاهده شده در تست پاپ معمولاً CIN 1 هستند. تغییرات HSIL که در تست پاپ اسمیر مشاهده می شود می تواند CIN 2، CIN 2/3 یا CIN 3 باشد.
- تغییرات CIN 1 خفیف یا درجه پایین هستند. آنها معمولاً خود به خود از بین می روند و نیازی به درمان ندارند.
- تغییرات CIN 2 متوسط هستند و معمولاً با حذف سلول های غیر طبیعی درمان می شوند. با این حال، CIN 2 گاهی اوقات می تواند خود به خود از بین برود. برخی از افراد، پس از مشورت با ارائه دهنده مراقبت های بهداشتی خود، ممکن است تصمیم بگیرند که هر 6 ماه یک بار کولپوسکوپی با بیوپسی انجام دهند. اگر CIN 2 به CIN 3 پیشرفت کرد یا طی 1 تا 2 سال از بین نرفت، باید درمان شود.
- تغییرات CIN 3 به شدت غیر طبیعی است. اگرچه CIN 3 سرطان نیست، اما در صورت عدم درمان ممکن است تبدیل به سرطان شده و به بافت طبیعی مجاور سرایت کند. پزشکان هنوز راهی برای تشخیص اینکه کدام موارد CIN 3 تبدیل به سرطان می شوند و کدام موارد نه، ندارند. CIN 3 باید فوراً درمان شود، **مگر اینکه باردار** باشید.

Treatment for high-grade cervical cell changes

- **Loop electrosurgical excision procedure (LEEP)** uses a thin wire loop, through which an electrical current is passed, to remove abnormal tissue. This procedure is typically done in a doctor's office. It usually takes only a few minutes, and local anesthesia is used to numb the area.
- **Cold knife conization** uses a scalpel to remove the abnormal tissue. This procedure is done at the hospital under general anesthesia.
- Several other treatments may also be used.
- **Laser therapy** uses a laser (narrow beam of intense light) to remove or destroy abnormal tissue. This is an outpatient procedure that may be done under local or general anesthesia.
- **Cryotherapy** uses a special cold probe to destroy abnormal tissue by freezing it. This procedure is done at a doctor's office. It takes only a few minutes and usually does not require anesthesia.
- **Total hysterectomy** is the surgical removal of the uterus and cervix. It is often used to treat AIS. It is used to treat CIN3 only if the abnormal cells were not completely removed by other treatments.

جمع بندی تفسیر پاپ اسمیر

- در صورتیکه در پاپ اسمیر ، Asc_Us یا Lsil همراه با HPV منفی باشد ، قدم بعد تکرار کو تست ۶-۱۲ ماه بعد است .
- - در صورتیکه در پاپ اسمیر Asc_H و بطور کل انواع High_grade مثبت باشد ، صرفنظر از جواب HPV ، قدم بعد کولپوسکوپی است .
- - در صورتیکه پاپ اسمیر نرمال باشد ولی HPV پرخطر یا هایریسک مثبت باشد (HPV_High_risk) ، برای انواع ۱۶، ۱۸ کولپوسکوپی فوری انجام داده و در سایر انواع ، تکرار کوتست را در ۶-۱۲ ماه بعد داریم .
- - در صورتیکه انواع HPV پرخطر بجز ۱۶، ۱۸ مثبت باشند و سیتولوژی نیز مختل باشد ، کولپوسکوپی ضرورت دارد.

جمع بندی تفسیر پاپ اسمیر

- برخی اندیکاسیونهای کولپوسکوپی :
- - مثبت شدن HPV های ۱۶، ۱۸
- - مقاوم بودن سایر HPV های پرخطر
- - سیتولوژی ASC H و HSIL
- - اتیپیکال اسکواموس سل و اتیپیکال گلاندولارگ سل
- - ضایعات سرویکس



طراحی لبخند (لمینیت سرامیکی - ونیر کامپوزیتی) - ایمپلنت

پروتز - بلیچینگ - درمان ریشه و ترمیم - کودکان

تلفن : ۰۴۱-۳۳۳۱۶۴۱۲

تبریز - بلوار ولیعصر - ساختمان آناهیتا - طبقه ۳ واحد ۷



Dormant HPV myths

- **Someone can't get HPV if their sexual partner doesn't have symptoms.** Symptoms don't need to be present to contract the virus.
- **HPV can't be transmitted through sex between two people with vulvas.** It can be transmitted from any sexual activity or exchange of fluids.
- **You can't have HPV if you don't have symptoms.** You can still have the virus, it just might be dormant.

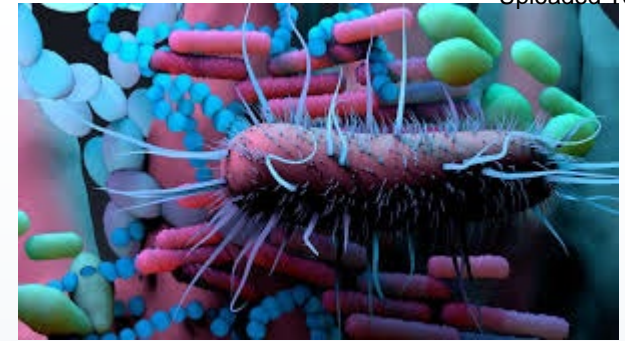




Dormant HPV myths



- ***A condom prevents the spread of dormant HPV.*** While uncommon, HPV may still spread, especially if a condom or other barrier method isn't used correctly.
- ***HPV only affects people with vulvas.*** It affects people of all sexes. In some studies, people with penises were more likely to have HPV.



- doi: 10.1002/jmv.27837. Epub 2022 May 16.
- **Microbiota and HPV: The role of viral infection on vaginal microbiota**
- An altered vaginal microbiota might play a functional role in HPV cervical infection, progression, and clearance.
- The relationship between infection and microbiota could spur the development of new probiotics

The screenshot shows a web browser window with multiple tabs open, including 'Human papillomaviru...', 'Risk of decreased ova...', 'HPV-related diseases', 'HPV and vaginal micr...', and 'Google Translate'. The address bar shows the URL 'pubmed.ncbi.nlm.nih.gov/37484059/'. The browser's toolbar includes various icons for navigation and settings. Below the browser window, there is a large blue arrow pointing right and some abstract line art.

Search results

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> Health Sci Rep. 2023 Jul 20;6(7):e1343. doi: 10.1002/hsr2.1343. eCollection 2023 Jul.

Risk of decreased ovarian reserve in women with HPV infection and cervical lesions

Fereshteh Fakor¹, Nasrin G Gashti¹, Amirhossein H Fallah², Roya Kabodmehri¹, Zahra Rafiei Sorouri³, Aida Hasanzadi³, Zahra Pourhabibi⁴

Affiliations + expand
PMID: 37484059 PMCID: [PMC10357935](#) DOI: [10.1002/hsr2.1343](#)

Abstract

Background: Human papillomavirus (HPV) infection has been considered an important involved factor for infertility. Since one of the causes of decreased ovarian reserve is oophoritis due to viral infections, this study aimed to evaluated the association between HPV infection and ovarian reserve.

Methods: This case-control study was performed on 219 women aged 25-35 years who were referred to the gynecologic oncology clinic during 2019-2020. The positive or negative HPV infection was confirmed by cervical biopsy and polymerase chain reaction (PCR) test. Cervical lesions or abnormalities in the cervix were assessed by colposcopy and histopathological analysis. Serum anti-

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Recommendations, Safety, Impact, & Coverage Rates

HPV VACCINE

در بسیاری از نواحی آسیا برنامه‌ای برای تزریق واکسن وجود ندارد و مردم در برابر این ویروس، واکسینه نیستند. این در حالی است که بخش اعظم آمریکای شمالی، خدمات تزریق واکسن دارد.

رنگ آبی: خدمات تزریق واکسن اچ‌پی‌وی، در تمام کشور انجام می‌شود.

رنگ نارنجی: به طور معمول، خدمات تزریق واکسن انجام نمی‌شود.

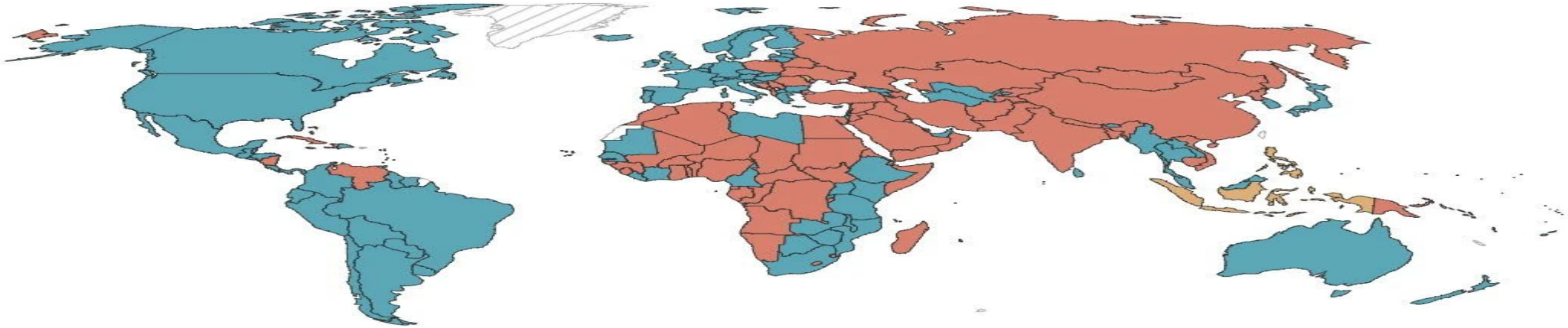
رنگ زرد: در برخی از مناطق کشور انجام می‌شود.

رنگ سفید: اطلاعاتی در دست نیست.

Which countries include human papillomavirus (HPV) vaccines in their vaccination schedules?, 2021

This shows which countries provide and recommend HPV vaccines through routine services. People may still be able to receive the vaccine if it's not in the routine schedule – it might be optional or available commercially.

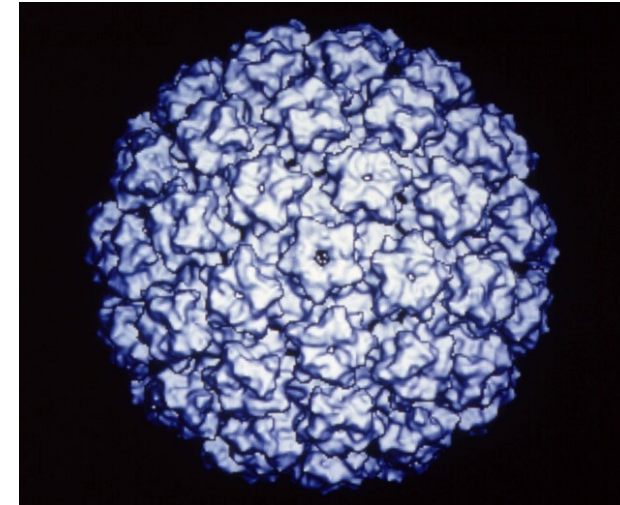
World



Entire country Not routinely administered
Regions of the country No data

HPV Prophylactic Vaccines

- ➡ Recombinant L1 capsid proteins that form “virus like” particles (VLP)
- ➡ Non-infectious and non-oncogenic
- ➡ Produce higher levels of neutralizing antibody than natural infection



HPV VLP



HPV Vaccine



Quadrivalent/HPV4 (Gardasil)	Name	Bivalent/HPV2 (Cervarix)
Merck	Manufacturer	GlaxoSmithKline
6, 11, 16, 18	Types	16, 18
Females: Anal, cervical, vaginal and vulvar precancer and cancer; Genital warts Males: Anal precancer and cancer; Genital warts	Indications	Females: Cervical precancer and cancer Males: Not approved for use in males
Pregnancy Hypersensitivity to yeast	Contraindications	Pregnancy Hypersensitivity to latex (latex only contained in pre-filled syringes, not single-dose vials)
3 dose series: 0, 2, 6 months	Schedule (IM)	3 dose series: 0, 1, 6 months

Vaccination Recommendations

- ➡ HPV vaccine is recommended for routine vaccination at age 11 or 12 years. (Vaccination can be started at age 9.)
- ➡ ACIP also recommends vaccination for everyone through age 26 years if not adequately vaccinated when younger.
- ➡ HPV vaccination is given as a series of either two or three doses, depending on age at initial vaccination.

- ➡ Vaccination is not recommended for everyone older than age 45 years.
- ➡ Some adults ages 27 through 45 years might decide to get the HPV vaccine based on discussion with their clinician, if they did not get adequately vaccinated when they were younger. HPV vaccination of people in this age range provides less benefit, for several reasons, including that more people in this age range have already been exposed to HPV.

Dosing Schedules

- ➡ Two doses of HPV vaccine are recommended for most persons starting the series before their 15th birthday.
- ➡ The second dose of HPV vaccine should be given **6 to 12** months after the first dose.
- ➡ Adolescents who receive two doses less than 5 months apart will require a third dose of HPV vaccine.
- ➡ Three doses of HPV vaccine are recommended for teens and young adults who start the series at ages 15 through 45 years, and for immunocompromised persons.
- ➡ The recommended three-dose schedule is 0, 1–2 and 6 months.

Pregnancy

- ➡ HPV vaccine is not recommended for use during pregnancy.
- ➡ If a person is found to be pregnant after starting the HPV vaccine series, second and/or third doses should be delayed until they are no longer pregnant.
- ➡ If a person receives HPV vaccine and later learns that they are pregnant, there is no reason to be alarmed.
- ➡ Any suspected adverse events following HPV vaccination during pregnancy should be reported to VAERS.



Recommendation for Males

- ▶ **Quadrivalent HPV vaccine (Gardasil) recommended for boys at age 11 or 12 years for prevention of anal cancer and genital warts**
 - ▶ **Also for boys 13 through 21 who haven't started or completed series**
 - ▶ **Young men, 22 through 45 years of age, may get the vaccine**
 - ▶ **Teen boys through age 26 who identify as gay or bisexual and haven't started or completed series should be vaccinated**



HPV Vaccine Safety

- ➡ **The most common adverse events reported were considered mild**
- ➡ **For serious adverse events reported, no unusual pattern or clustering that would suggest that the events were caused by the HPV vaccine**
- ➡ **These findings are similar to the safety reviews of MCV4 and Tdap vaccines**
- ➡ **57 million doses of HPV vaccine distributed in US since 2006**



HPV Vaccine Impact:

High HPV Vaccine Coverage in Australia

- ➡ **80% of school-age girls in Australia are fully vaccinated**
- ➡ **High-grade cervical lesions have declined in women less than 18 years of age**
- ➡ **For vaccine-eligible females, the proportion of genital warts cases declined dramatically by 93%**
- ➡ **Genital warts have declined by 82% among males of the same age, indicating herd immunity**

Evaluation of immune response to single dose of quadrivalent HPV vaccine at 10-year post-vaccination, 2023

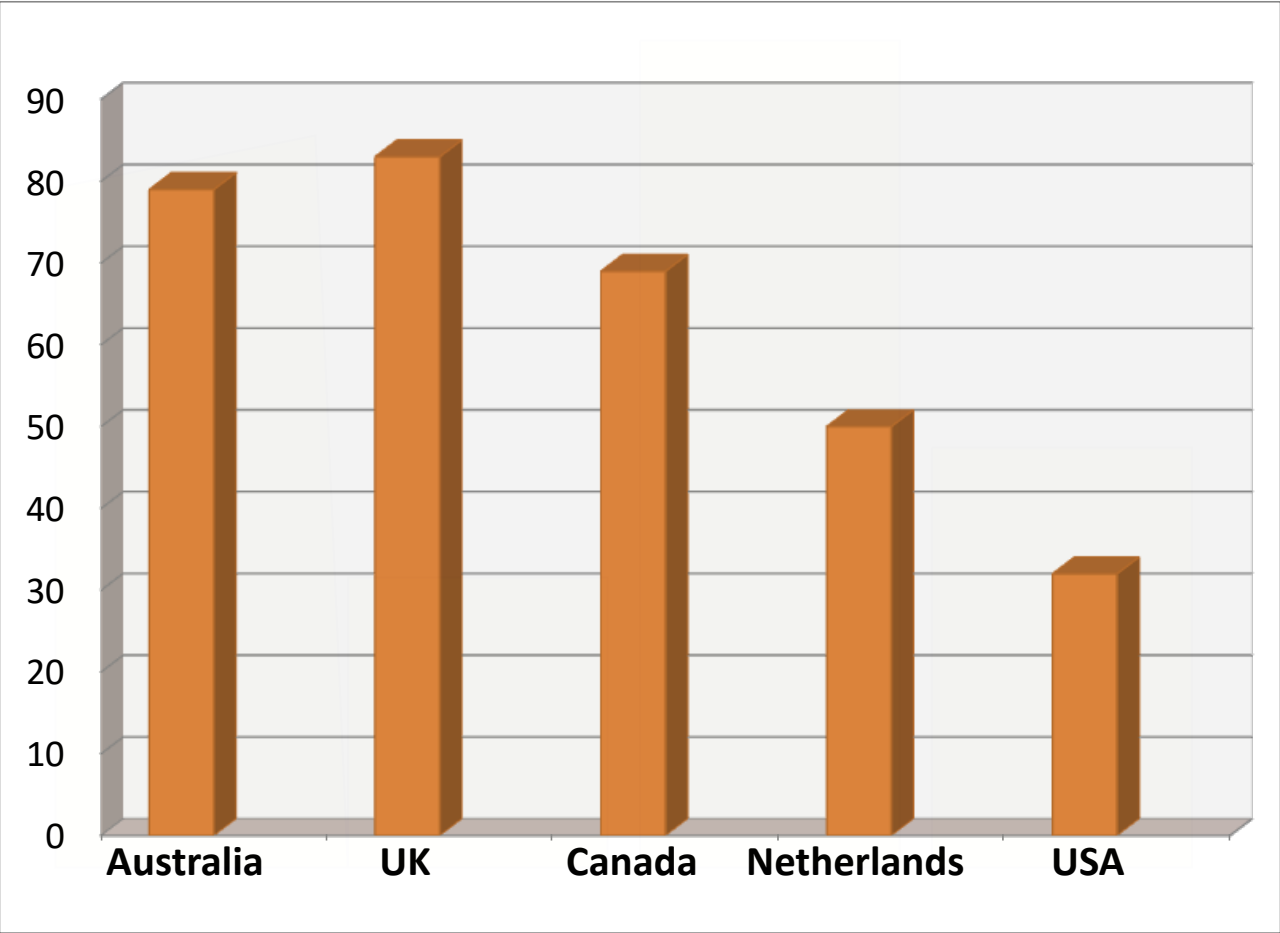
- ➡ Our study demonstrates the high and durable immune response in single-dose recipients of HPV vaccine at 10-years post vaccination.

Impact of age at vaccination and cervical HPV infection status on binding and neutralizing antibody titers at 10 years after receiving single or higher doses of quadrivalent HPV vaccine

- Among the younger **(10–14 years)** recipients of a single dose, 97.7% and **98.2% had** detectable binding antibody titers against HPV 16 and HPV 18 respectively at ten years post-vaccination.
- The proportions among those receiving a single dose at age **15–18 years** were **92.3%** and 94.2% against HPV 16 and HPV 18 respectively.
- Mean HPV 16 binding antibody titers were 2.1 folds (95%CI 1.4 to 3.3) higher in those vaccinated at ages 10–14 years, and 1.9 folds (95%CI 1.2 to 3.0) higher in those vaccinated at 15–18 years compared to mean titers seen in the unvaccinated women.

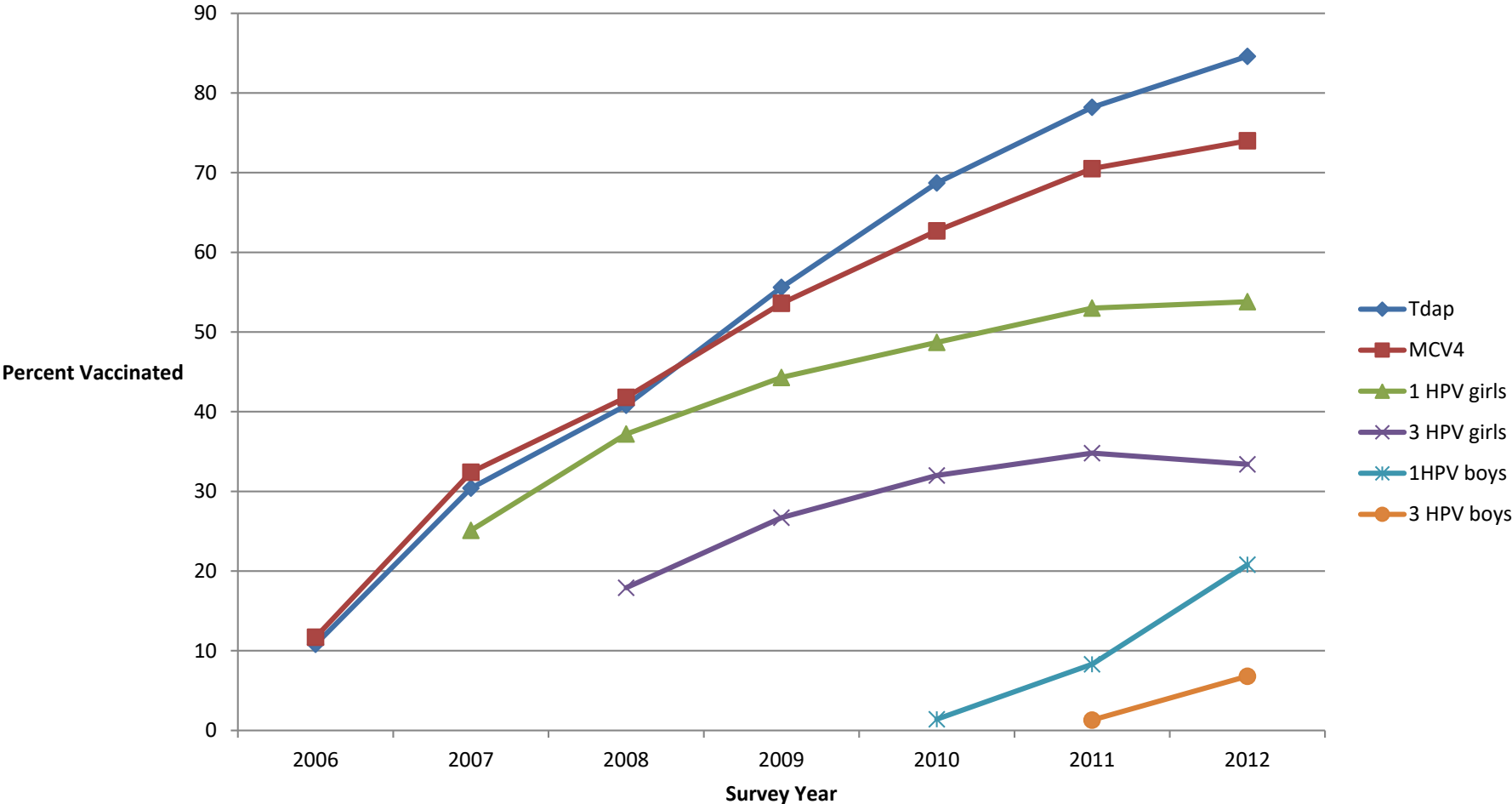


International uptake of 3 doses HPV vaccine





National Estimated Vaccination Coverage Levels among Adolescents 13-17 Years, National Immunization Survey-Teen, 2006-2012



Tdap: tetanus, diphtheria, acellular pertussis vaccine.
MCV4: meningococcal conjugate vaccine
HPV: human papillomavirus vaccine



Avoid Missed Opportunities

- ➡ HPV vaccine can safely be given at the same time as the other recommended adolescent vaccines
- ➡ Provide HPV vaccine during routine sports, or camp physicals
- ➡ Review immunization record even at acute care visits
- ➡ Encourage parents to keep accurate vaccination records and to review the immunization schedule
- ➡ Systems interventions depend on clinician commitment- determine what would work best for YOUR practice



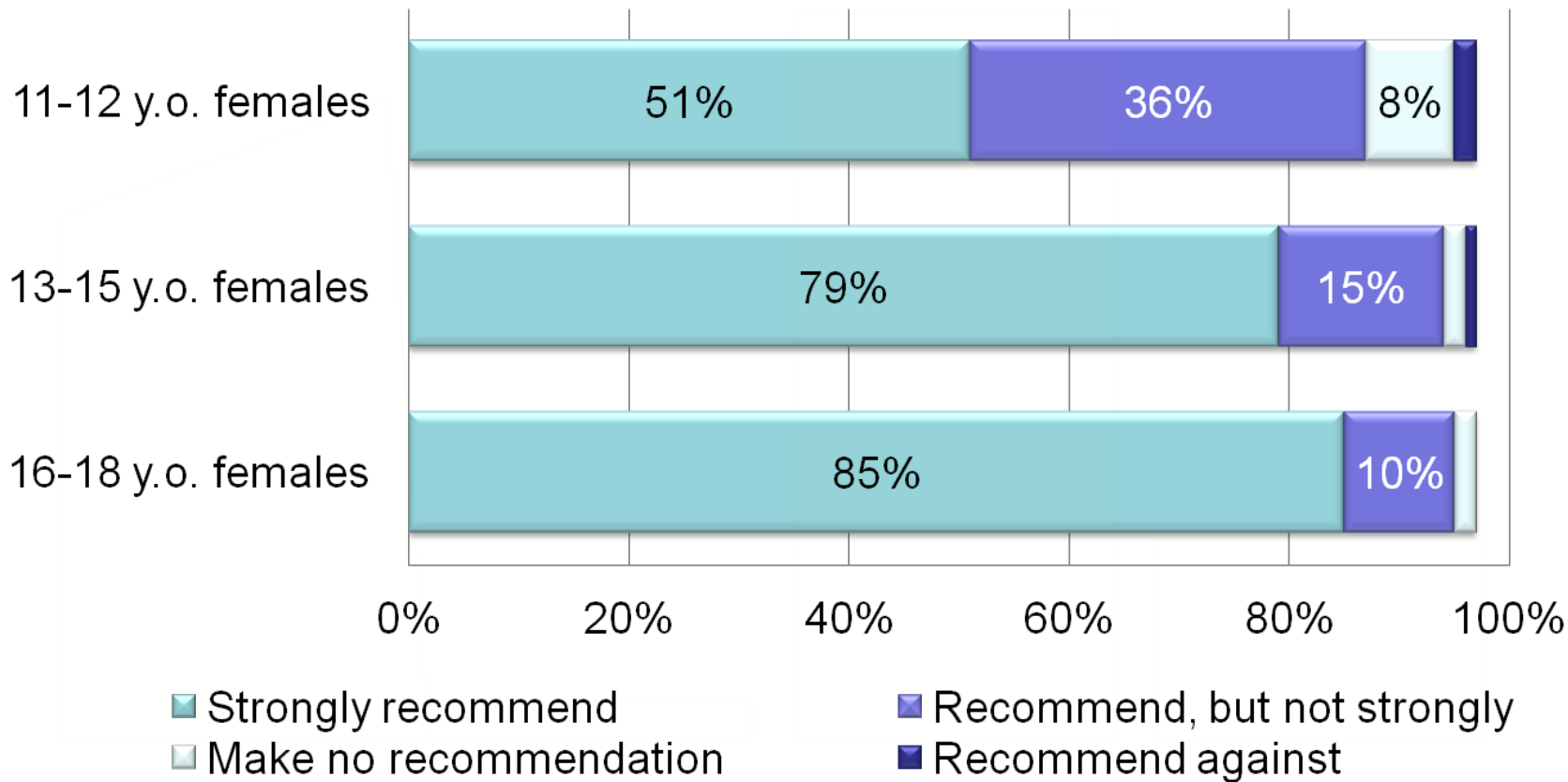
The Perfect Storm

➡ Why is HPV vaccine different?

- ➡ HPV vaccine issues sensationalized by popular media
- ➡ Different reasons for why some girls and boys don't get the first shot and why some don't finish all 3 shots
- ➡ Parents think sexuality instead of cancer prevention
- ➡ Some clinicians aren't giving strong recommendations
- ➡ Parents have questions that are seen as hesitation by some doctors
- ➡ Phased girls-then-boys recommendations initially confusing to parents
- ➡ Systems interventions to improve coverage rates depend on clinician commitment

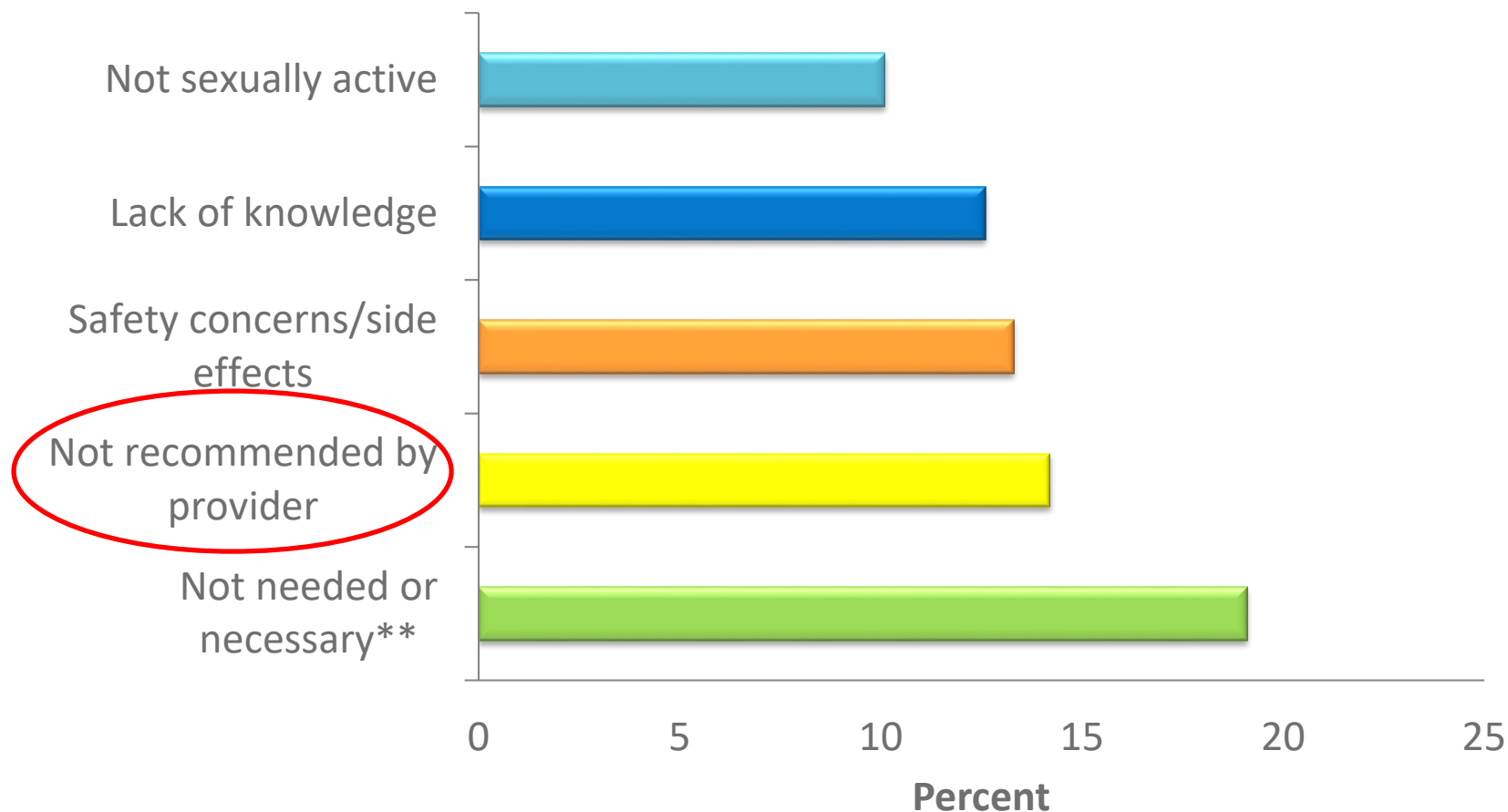


Strength of HPV Vaccine Recommendation for Female Patients, Pediatricians and Family Physicians (N=609)



Allison et al. <https://cdc.confex.com/cdc/nic2011/webprogram/Paper25181.html>

Top 5 reasons for not vaccinating daughter, among parents with no intention to vaccinate in the next 12 months, NIS-Teen 2022



* Not mutually exclusive.

** Did not know much about HPV or HPV vaccine.

A green light for sexual activity?

- ➡ **Parents may be concerned that vaccinating may be perceived by the child as permission to have sex**
 - ➡ In focus groups, some parents expressed concern that in getting HPV vaccine for their child, they would be giving their child permission to have sex
 - ➡ This was one of the top four reasons respondents gave when asked why they would not vaccinate their daughter
 - ➡ A few parents expressed that while they wanted their child to “wait to have sex” they understood that might not be the case



How Can Clinicians Help?

1. Give a **STRONG** recommendation

- Ask yourself, how often do you get a chance to prevent cancer?

2. Start conversation early and focus on **cancer prevention**

- Vaccination given well before sexual experimentation begins
- Better antibody response in preteens

3. Offer a **personal story**

- Own children/Grandchildren/Close friends' children
- HPV-related cancer case

4. Welcome **questions** from parents, especially about safety

- Remind parents that the HPV vaccine is safe and not associated with increased sexual activity

90–70-90 Strategy

- ▶ In 2020, the World Health Assembly adopted the Global Strategy for Cervical Cancer Elimination to accelerate the elimination of cervical cancer as a public health problem. Its goal is for all countries to achieve a cervical cancer incidence rate of less than 4 cases per 100 000 women. The strategy sets out three targets for 2030:

- ➡ **90 %**
- ➡ HPV vaccination coverage for girls by age 15
- ➡ **70%**
- ➡ screening coverage (70% of women screened using a high-performance test at ages 35 and 45)
- ➡ **90%**
- ➡ of precancerous lesions treated and of invasive cancer cases managed

درمان

➡ اسید تری کلرواستیک در درمان زگیلها می تواند استفاده شود.

➡ پودوفیلین

➡ ایمی کیمود

➡ پماد سینکانچینز

➡ پماد آلدارا : دو بار در هفته روی موضع مالیده شود. تا 6 هفته

➡ لیزر و جراحی



➡ تاثیر احساسی زگیل تناسلی

➡ تاثیر عاطفی تشخیص زگیل تناسلی در افراد عمیق است. احساس ترس، اضطراب، شرم، گناه و سرخوردگی معمولاً در میان افرادی که با این بیماری زندگی میکنند گزارش میشود.

➡ انگ مرتبط با عفونت های مقاربتی منجر به از دست دادن عزت نفس و تاثیر منفی بر سلامت روان میشود.

➡ مطالعات نشان داده است که افراد مبتلا به زگیل تناسلی در مقایسه با افرادی که این بیماری را ندارند بیشتر احتمال دارد علائم افسردگی و اضطراب را تجربه کنند.

پیامدهای اجتماعی زگیل تناسلی و تاثیر در روابط افراد

➡ زگیل تناسلی اغلب تاثیر قابل توجهی بر روابط اجتماعی داشته باشد. ترس از طرد شدن و ننگ مرتبط با داشتن یک عفونت مقاربتی منجر به احساس انزوا و مشکلات در ایجاد و حفظ روابط صمیمانه و دوستانه میشود.

➡ افشای این که به زگیل تناسلی مبتلا هستند برای شرکای جنسی یک تجربه چالش برانگیز و دارای بار احساسی است که اغلب مملو از اضطراب و عدم اطمینان است.

با تشکر از همراهی شما
@Dr.nedaekbatani



کد را
اسکن
کنید



کتاب
PDF

آموزش دستیار دندانپزشکی
تالیف دکتر نگین واعظی
DentalMed.ir



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