

**LIV**

the hospital for **L**eading **I**nternational **V**ision



# HPV Vaccines Up-to-Date

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**M. Faruk Kose, MD**

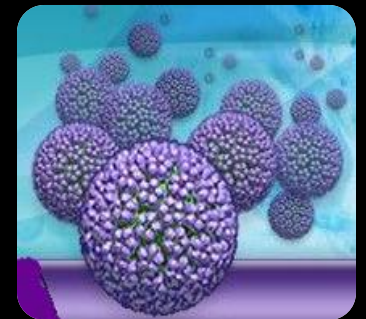
Bahcesehir University School of Medicine

Department of Obstetrics & Gynecology

**Liv Hospital Ulus**

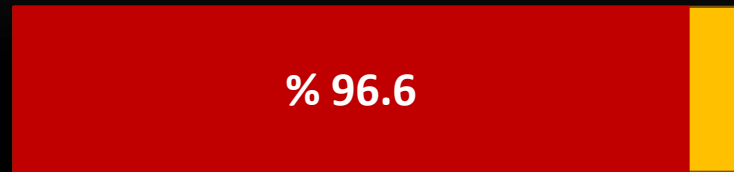
# Cervical Cancer Risk Factors

- **Human Papilloma Virus (HPV) infection**
- **Smoking**
- **Multi partner**
- **Multiparity**
- **Early sexual intercourse**
- **Immun deficiency by drugs**
- **Nutritional factors**
- **Genetical factors**



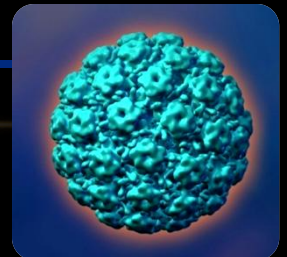
# HPV Types and Potential Risks

HPV in Cervix Cancer (n=1918)

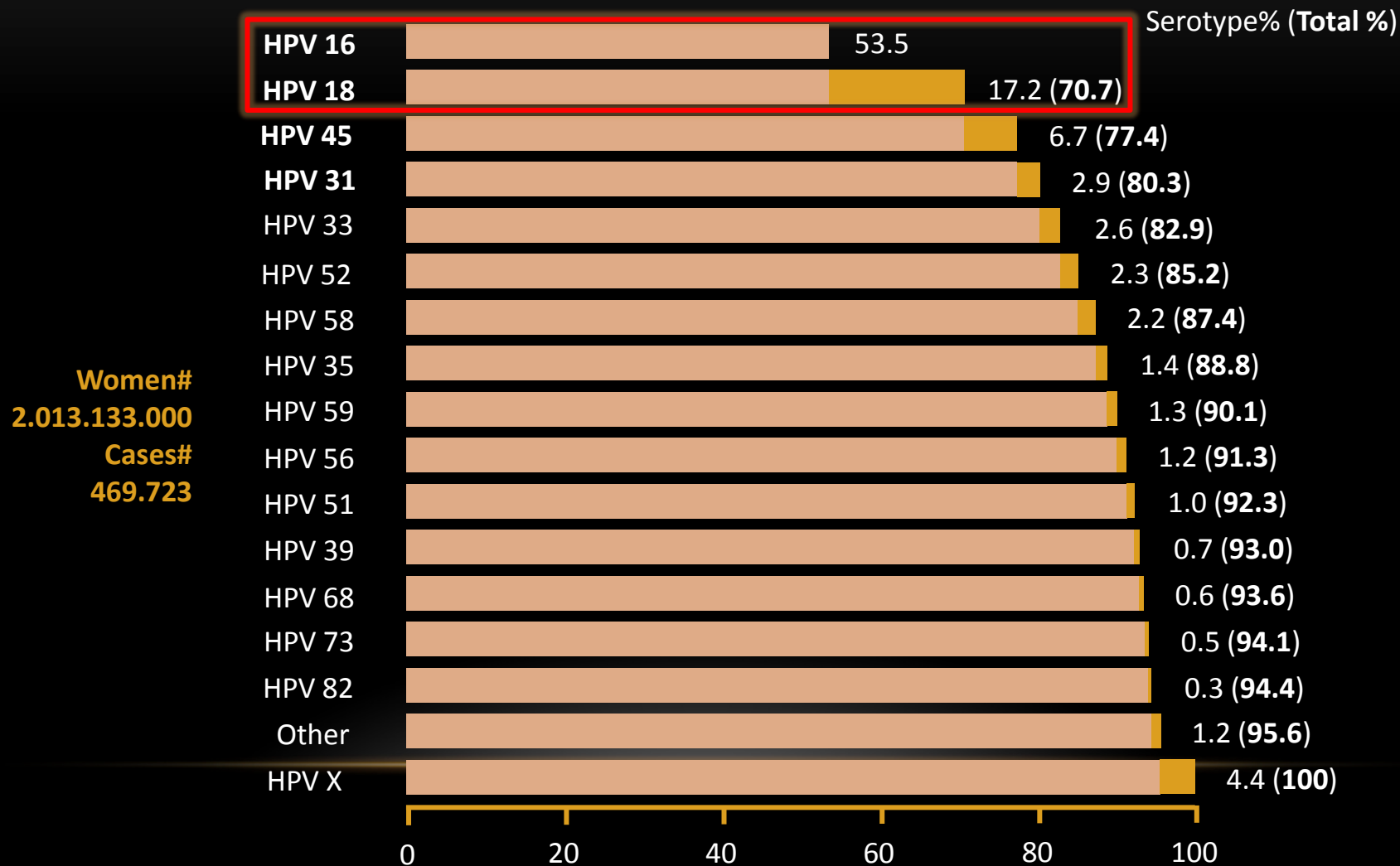


**16, 18** **6, 11**

High risk	<b>16, 18</b> , 45, 31, 33, 52, 58, 35, 59, 56, 51, 39, 68, 73, 82
Modarate risk	26, 53, 66
Lowrisk	<b>6, 11</b> , 40, 42, 43, 44, 54, 61, 70, 72, 81, CP6108



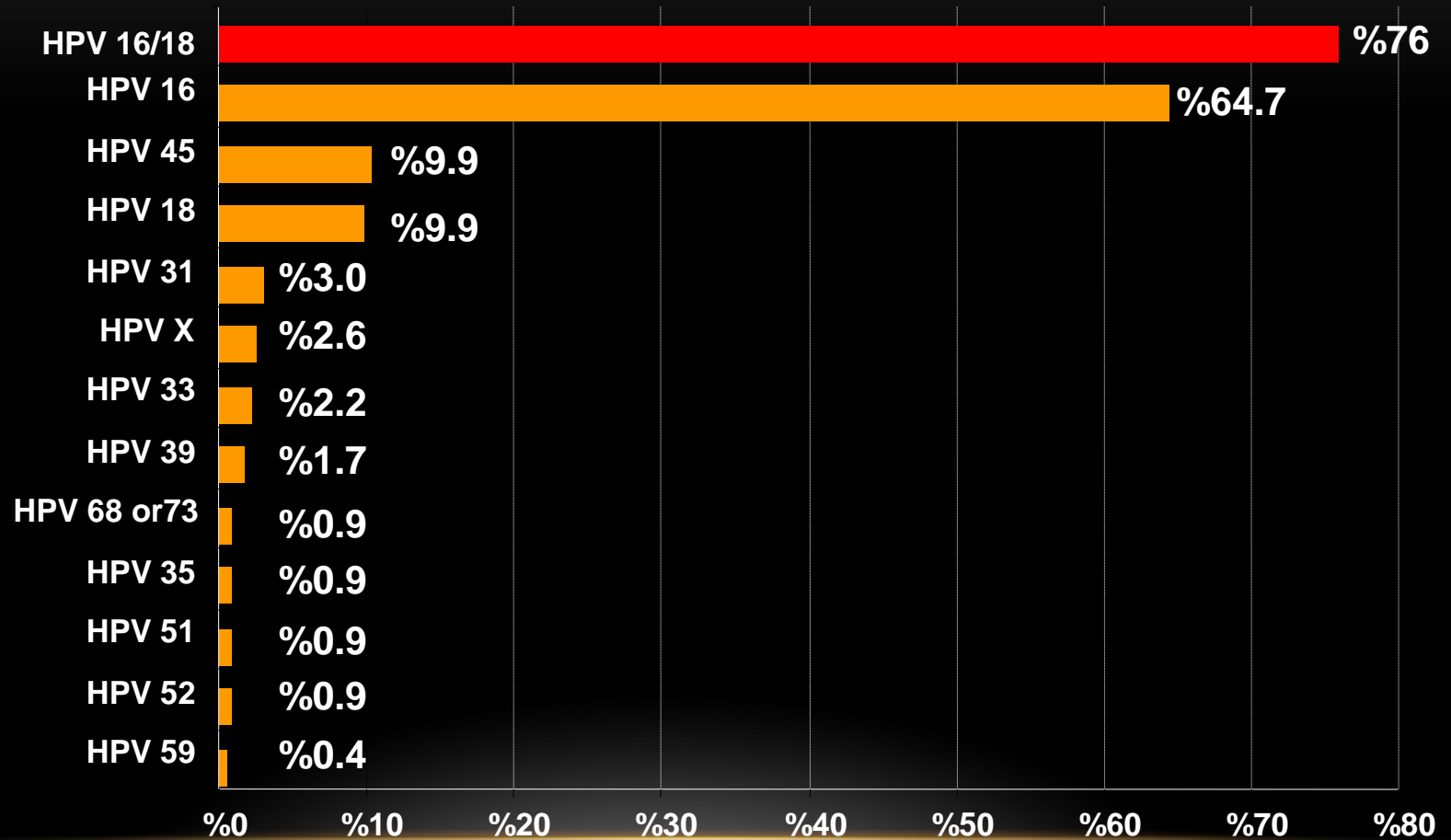
# HPV Serotypes in Cervical Cancer



## Basından

- **Son söz Prof. Dr. ...' da (2012):**
- Türkiye'deki HPV tipleri bilinmiyor. Ülkemizde de aynı oranda etkili olacağı şüpheli...

# HPV Serotype Distribution in Cx Ca



# Genital Wart Study in Turkey

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This is the one of two published studies on genital wart epidemiology in Turkey

Annual Prevalence in this study is **154/100.000** women (30-65 Y)

Recurrence rate is **15-37%**

# Projection of Weighted Data to General Population

Genital Wart	Public		University		Private		Total	
	n	%	n	%	n	%	n	%
Not weighted in study group	13	3.4	60	3.8	40	4.1	114	3.8
<b>Calculated according to general population</b>								
Based on all study facts	3.4 (3.4-4)		3.8 (2.2-6.5)		4.1 (2.0-8.1)		<b>3.8*</b> <b>(3.4-4.3)</b>	
Based on pregnant women in study	3.3 (3.3-3.3)		1.8 (0.3-11.5)		2.8 (0.5-15.2)		<b>2.4*</b> <b>(1.3-4.3)</b>	

\*Point prevalence adjusted to age

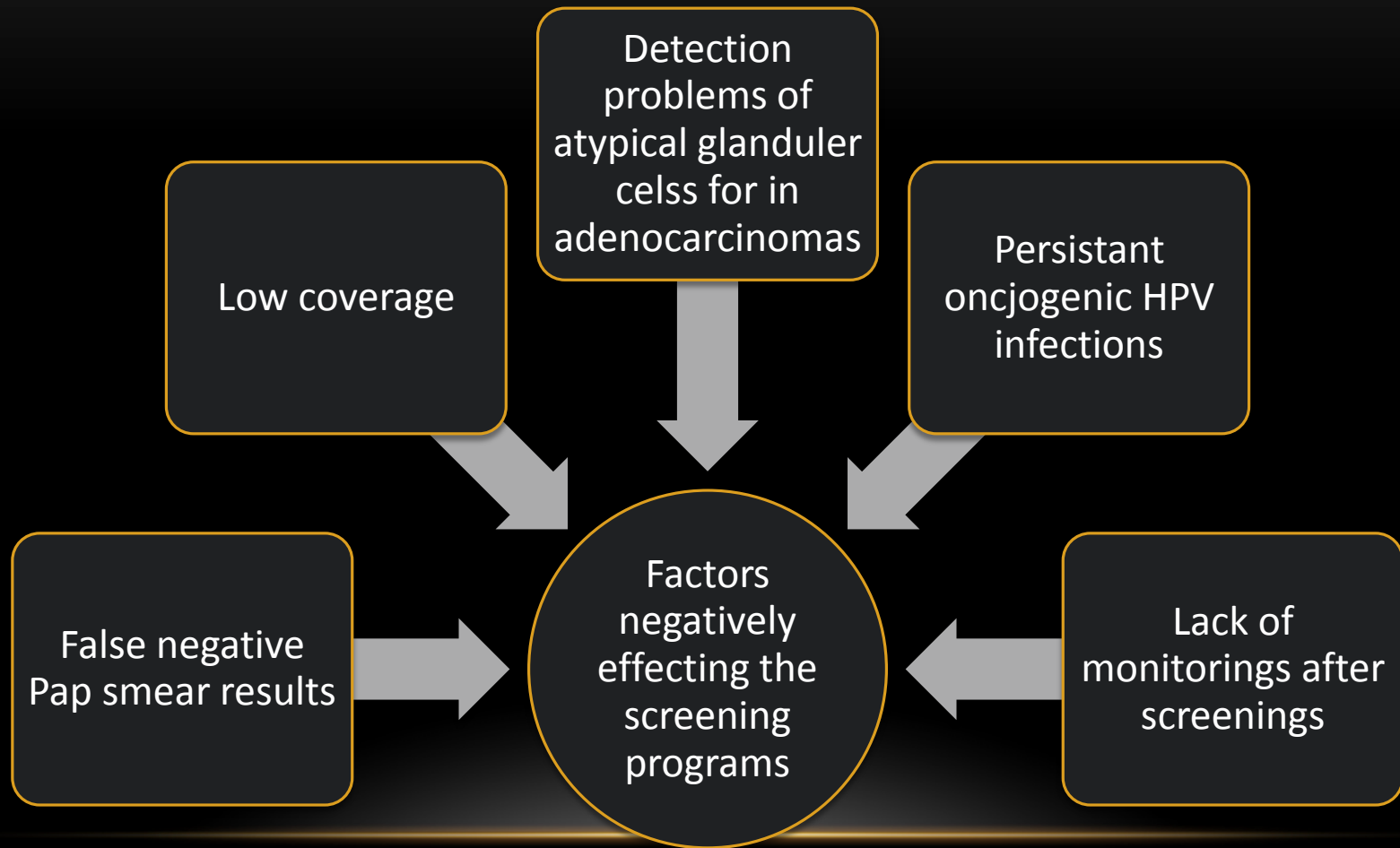


## Basından

- **Prof. Dr. ... (Kadın Hastalıkları ve Doğum Uzmanı) [2012]**
- “Yılda iki kez simir testi yaptıran kadınların bu virus nedeniyle kanser olma riski yoktur.”

ACS/ACOG/USPSTF/CDC/NCCN Guidelines	
21-29 Y	Only Pap smear in every 3 years
30-65 Y	HPV + Pap smear in every 5 years (recommanded)
	Only Pap smear in every 3 years

# Efficacy of Screening Programs



## Cancers Associated with Infections

Infections	Effected Organs	# Ca	%Ca
H. Pylori	Stomach	592,000	%5.5
<b>HPV</b>	<b>Cx and others</b>	<b>561,200</b>	<b>%5.2</b>
HBV, HCV	Liver	535,000	%4.9
HHV-8	Kaposi Sarcoma	54,000	%0.9
Schistosomiasis	Bladder	9,000	%0.1
HTLV-1	Leukemia	2,700	
<b>Total</b>		<b>1,900,000</b>	<b>%18</b>

## Epidemiology

- Sexual intercourse is low for girls but frequent for boys before marriage
- Generally women are infected after marriage
- Adolescent brides are more common in Turkey
- Many men have more than one wife or relationships
- It shows varieties in terms of sexual behaviours for young generation in Turkey

Human Papilloma Virus (HPV) infection is sexually transmitted!

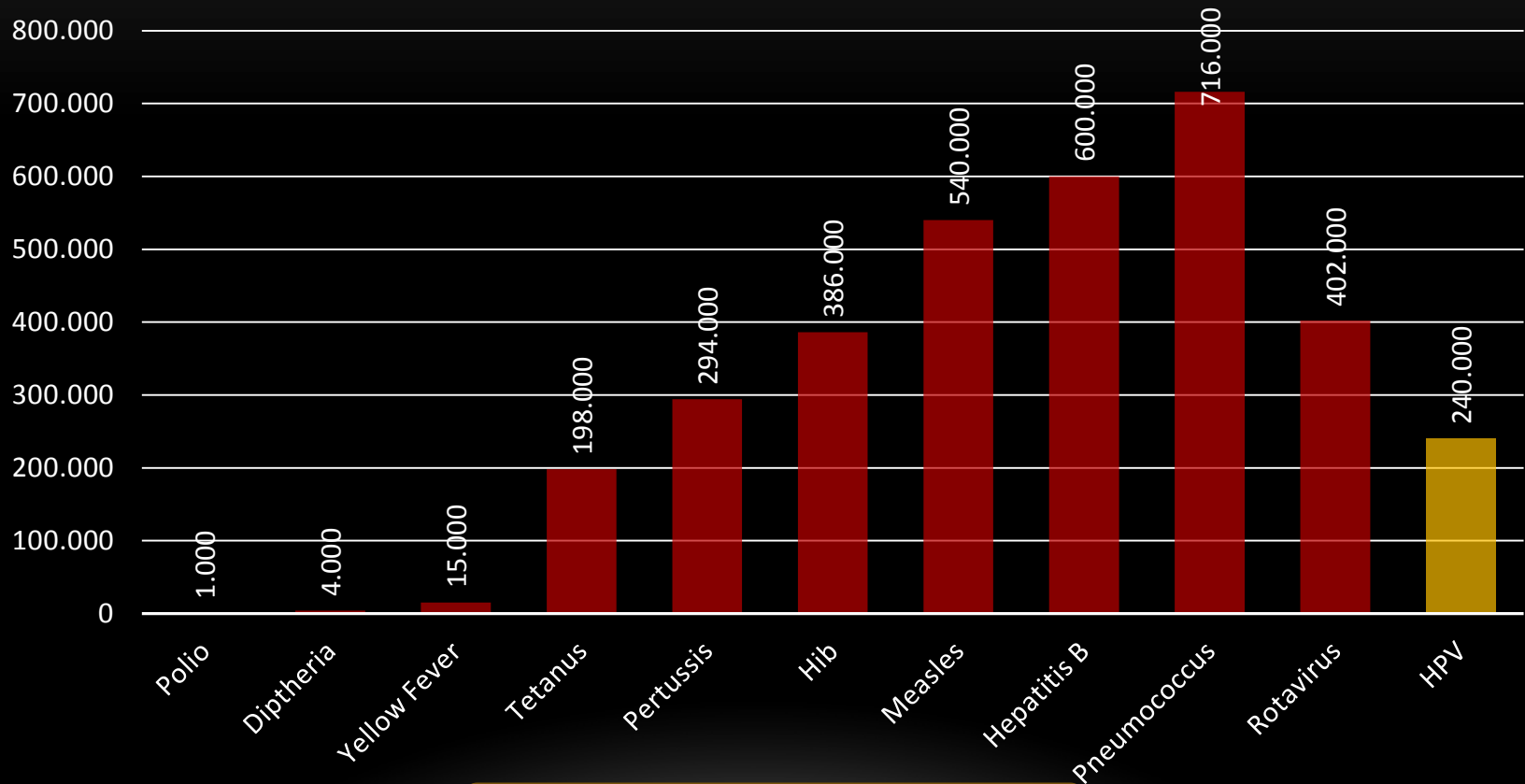
# Opinion Survey in Boys Whether They Need Sexual Experience Before Marriage

Evlilik Öncesi Cinsel Deneyim Onayı	Kadın		Erkek		Toplam	
	N	%	N	%	N	%
Olumlu Bakıyorum	40	70,2	63	79,7	103	75,7
Olumsuz Bakıyorum	10	17,5	10	12,7	20	14,7
Kararsızım	7	12,3	6	7,6	13	9,6
<b>Toplam</b>	<b>57</b>	<b>100</b>	<b>79</b>	<b>100</b>	<b>136</b>	<b>100</b>

# Opinion Survey in Girls Whether They Need Sexual Experience Before Marriage

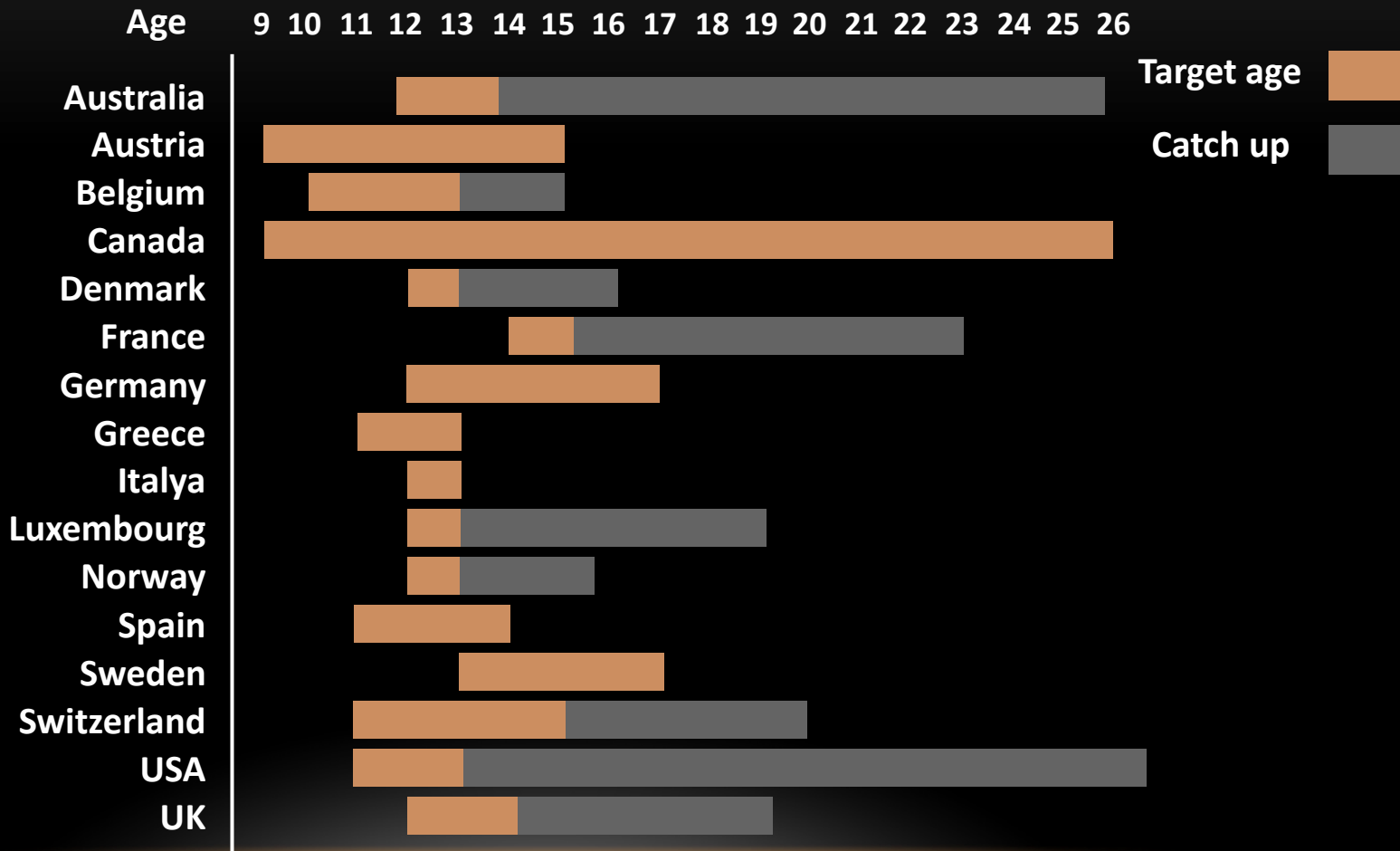
Evlilik Öncesi Cinsel Deneyim Onayı	Kadın		Erkek		Toplam	
	N	%	N	%	N	%
Olumlu Bakıyorum	12	21,1	13	16,5	25	18,4
Olumsuz Bakıyorum	36	63,2	61	77,2	97	71,3
Kararsızım	9	15,8	5	6,3	14	10,3
Toplam	57	100	79	100	136	100

# Mortality for Vaccine Preventable Diseases

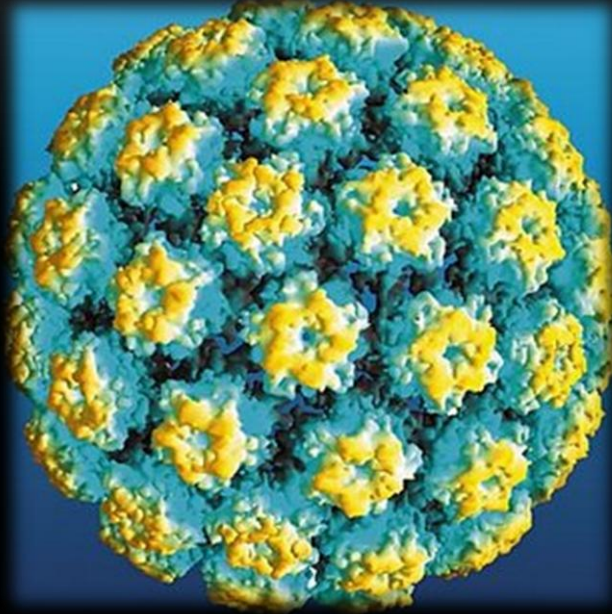


Totally 3.396.000 deaths (2002)

# Country Implementations for HPV Vaccine Introductions







# HPV Vaccines

Milliyet 14.04.1955

# Çocuk felci aşısının bulunuşu büyük bir memnunluk yarattı

Dünyada heyecan uyandıran haber şehrimizde de alâka ile karşılandı. Türk doktorları kat'i ve ilmi malûmat almadan fazla bir şey söylemek istemiyorlar

(ÇELİK İKİNDÜK)

Çocuk felci (Salk Polio) hastalığına karşı Amerikada bulunmuş aşı, şehrimizde büyük bir alâka ile karşılanmıştır.

Haber, İstanbuldaki beklimler arasında «günün tesviti» olarak görülmüştür. Bu arada çocuk felcinden muzdarip yüzlerce kişiye, alâkâlılara mürcuat edecek aşı hakkında malûmat istenmiştir.

Ancak aşının feridüli hakkında henüz bir fikre sahip olunmuşun mürcuat sahiplerine tutun edici cevaplar verilmemiştir.

Şehirdeki doktorlar, «Çocuk felcinin kat'i aşısı nihayet keşfedildi» haberini ilmiyle karşılamışlardır. Bununla beraber, beklimler böyle bir buluşun mürcuatı olmayacağını ifade etmişlerdir. Bazı hükümler ise «beklemede olduğumuz haber nihayet tahakkuk etti» demişlerdir.

Bu mevzufta İstanbul Hastahanesi Başhekimini Dr. Nuri Arıntan şunları söylemiştir:

«Haber büyük bir memnuniyetle karşılanıyor. Fakat okullarımıza sadece garze havalandırılmasına ihtisar etmektedir. Tıbbi mecmualar da, bu hususta mütemmim malûmatlar bulacaktır. O zaman daha selâhiyetli konuşabiliriz. Memafih bu hastalık, bugün olmazsa da yarın mutlak surette tedavi edilir hale gelecektir.»

Şişli Çocuk Hastahanesi Başhekimini Bakteriolog Karip Güran ise, bu mevzufta şunları söylemiştir:

«Şüphesiz ki bu buluş insanlığa büyük bir hizmettir. Aşının bulunuşu bir sürpriz olarak kabul edilmemelidir. Zira bu hastalığın tedavisi için, öteden beri çalışılmakta idi. Aşı hakkında henüz mütemmim malûmatlara yok ama, bu metodun ilminin safelerinde arandığı yer olacaktır.»

Bakteriolog Dr. Zekâi Müammer Tunçman ise şöyle demektedir:

«Bu çok mühim bir keşiftir.

Elimizde tıbbi mecmualar olmasından dolayı mahiyetini tamamen anlayamıyoruz. Fakat Amerikada bir milyon çocuk üzerinde test edilmiş bu aşının, cerebâhi açıktır. Aşı boyutu bir aydır. Bütün sağın halinde olan yerlerde talik edilene yerinde olacaktır. Bülünüşü gibi, çocuk felci hastalığına memleketimizde çok nadir rastlanır. Salgın bilinde yoktur. Geçen sene Mikrobiyo-

loji Cemiyetinin tertiplediği kongrede bu da bu mevzufta ele aldık ve mesleğ aldık.»

Bununla beraber keşifleriyle görülmüş bir kısmı beklenir de, aşımaların yukarı çıkarmak için, yinede konuşmak istemiyorlardır.

Çocuk felci hastalığına iyileşici aşının bulunuşu haberi, kalbleri kırık bir çok hastalara aşıla bulanın, tesle yarılmıştır.

★★

## Amerika aşığı kullanmaya başlıyor

14 Nisan 1955 - Amerika  
WASHINGTON, 13 - Amerika Sağlık Vekili Miles Ovette Hildoy, bugün gazetemizlere verdiği beyanatta, aştın müemiriyeti roman toylu olanın Çocuk Felci «Salk» aşısının imliline geçilmesi için hükümetin gerekli tedbirleri aldığını açıklamıştır.

Düğer taraftan denizlerdeki pasorici günden itibaren, Amerikalı mütey şerhârların,

bu yeni ilâç ile derhal kullanmaya başlayacakları da bildirilmiştir.

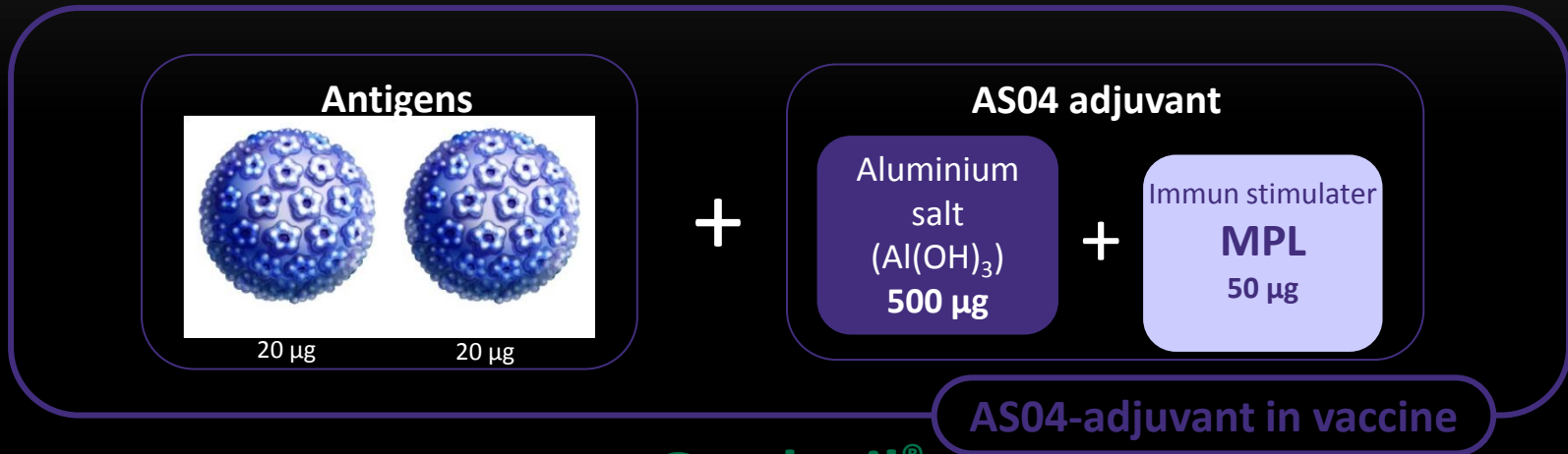
Ancak bugün Sağlık Vekilinden verdiğimiz yeni bir haber, aşının Amerikanın dâhili itibâllikini karşılayana kadar ihraçının men edildiğini bildirmiştir. Romalı tebliğde «dâhili itibâllik karşılanacak seviyeye gelince» sonra» herfel taleplerin karşılanmasına başlanacağı açıklanmaktadır.



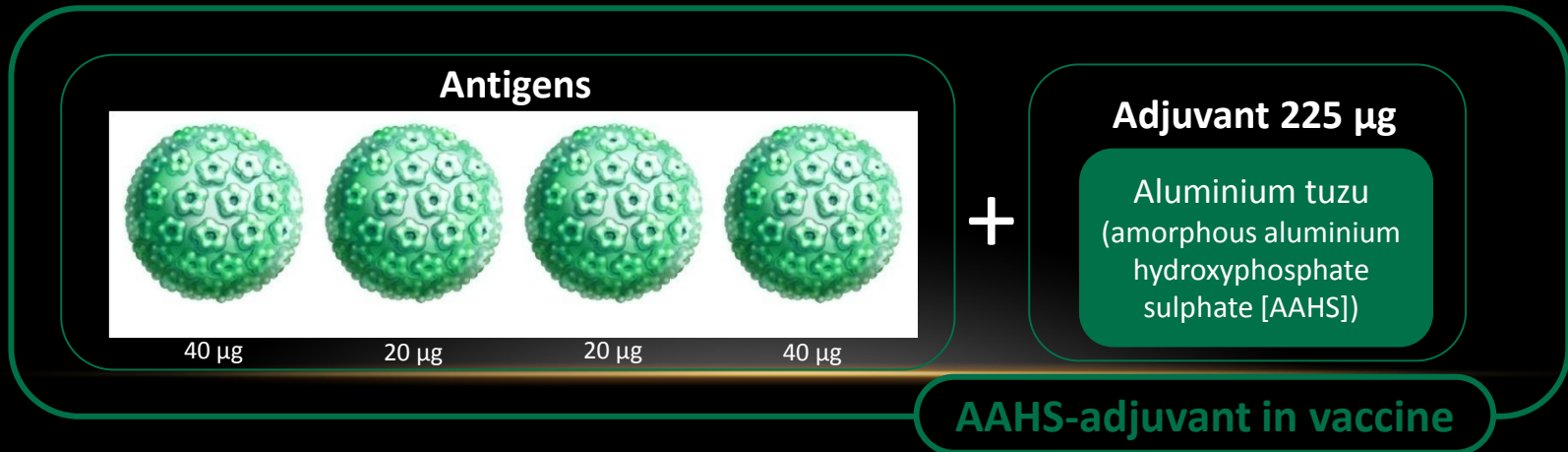
**Savaşı kazandı** Çocuk felcine karşı açılan savaş, kazansız bulunmamaktadır. Bu süreçte, çocuk felcine karşı verilen bir savaş buluşu olan Amerikalı bilim Dr. Jonas E. Salk tarafından gerçekleştirilmiştir. Keşfedilen ilacın mürcuatı olduğu nice tecrübelerden sonra nihai olarak «te» roman açıklanmıştır.

# Cervarix<sup>®</sup> and Gardasil<sup>®</sup> Vaccine Contents

## Cervarix<sup>®</sup>



## Gardasil<sup>®</sup>



MPL = monophosphoryl lipid A.

## Cervarix® FDA Approvals

- Cervical Cancer
- CIN 2+
- Cervical AIS
- CIN 1

## Cervarix® EMA\* Approvals

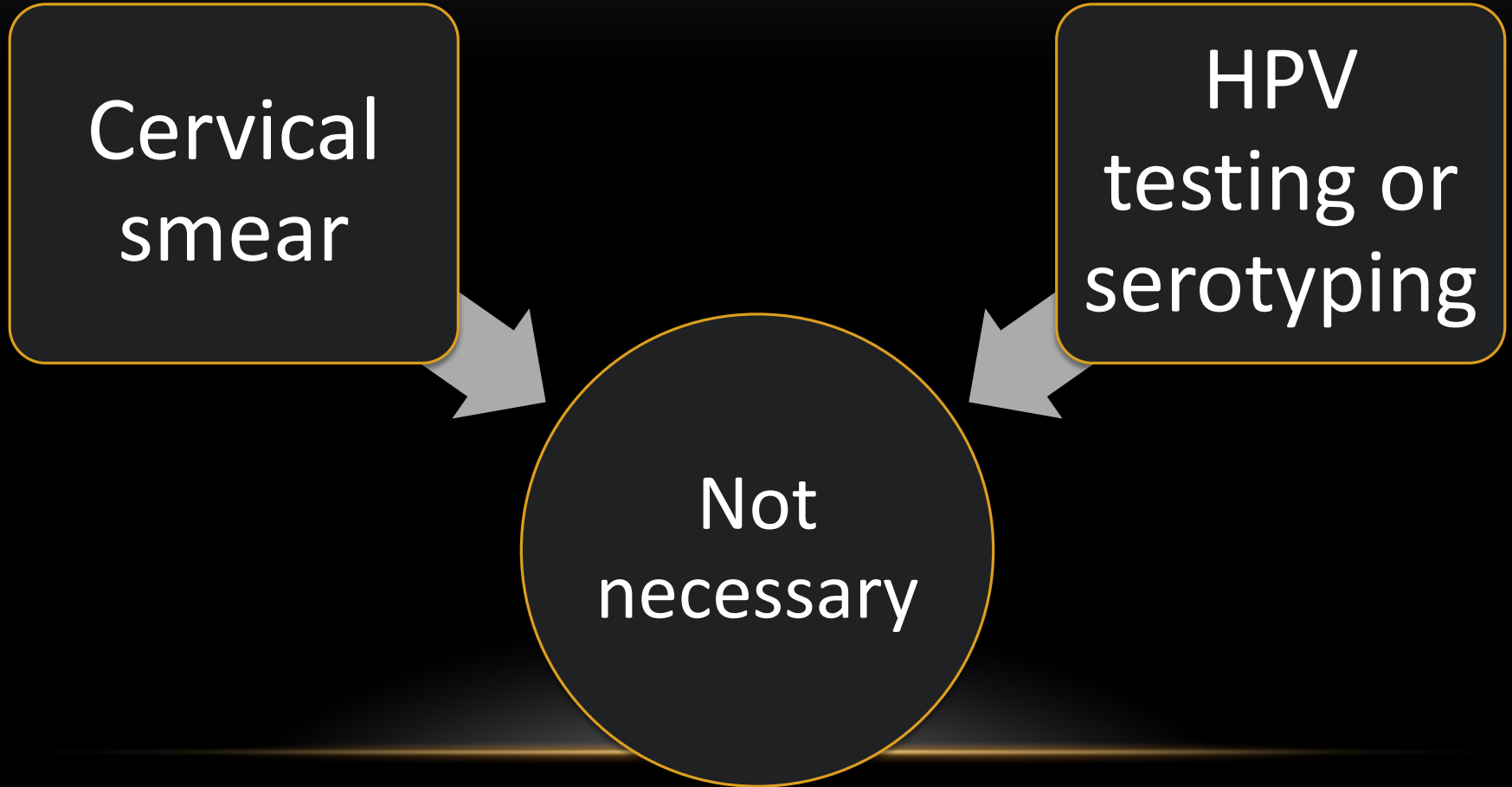
- Cervikal cancer
- CIN
- VIN
- VaIN

\*EMA: European Medicines Agency, 06/02/014

## Initial Assessment (FUTURE III)

Initial assessment	GARDASIL #1911 (%)	Placebo #1908 (%)
4 HPV Types [Serologic/PCR (-)]	67	67
Positive $\geq 1$ HPV (Serologic/PCR)	33	32
1 HPV Type	25	22
2 HPV Type	6	8
3 HPV Type	2	2
4 HPV Type	0.4	0.4
16 and 18 positive	1.0	1.6
Unknown	0.3	0.5

## Before Vaccination



# Gardasil<sup>®</sup> FDA Approvals



Girls and Women

Cervical, vaginal,  
vulvar ca

Genital warts

CIN 1, 2, 3

Cervikal AIS

VAIN 2, 3

Undifferentiated  
VIN (VIN2,3)

AIN and Anal  
cancer



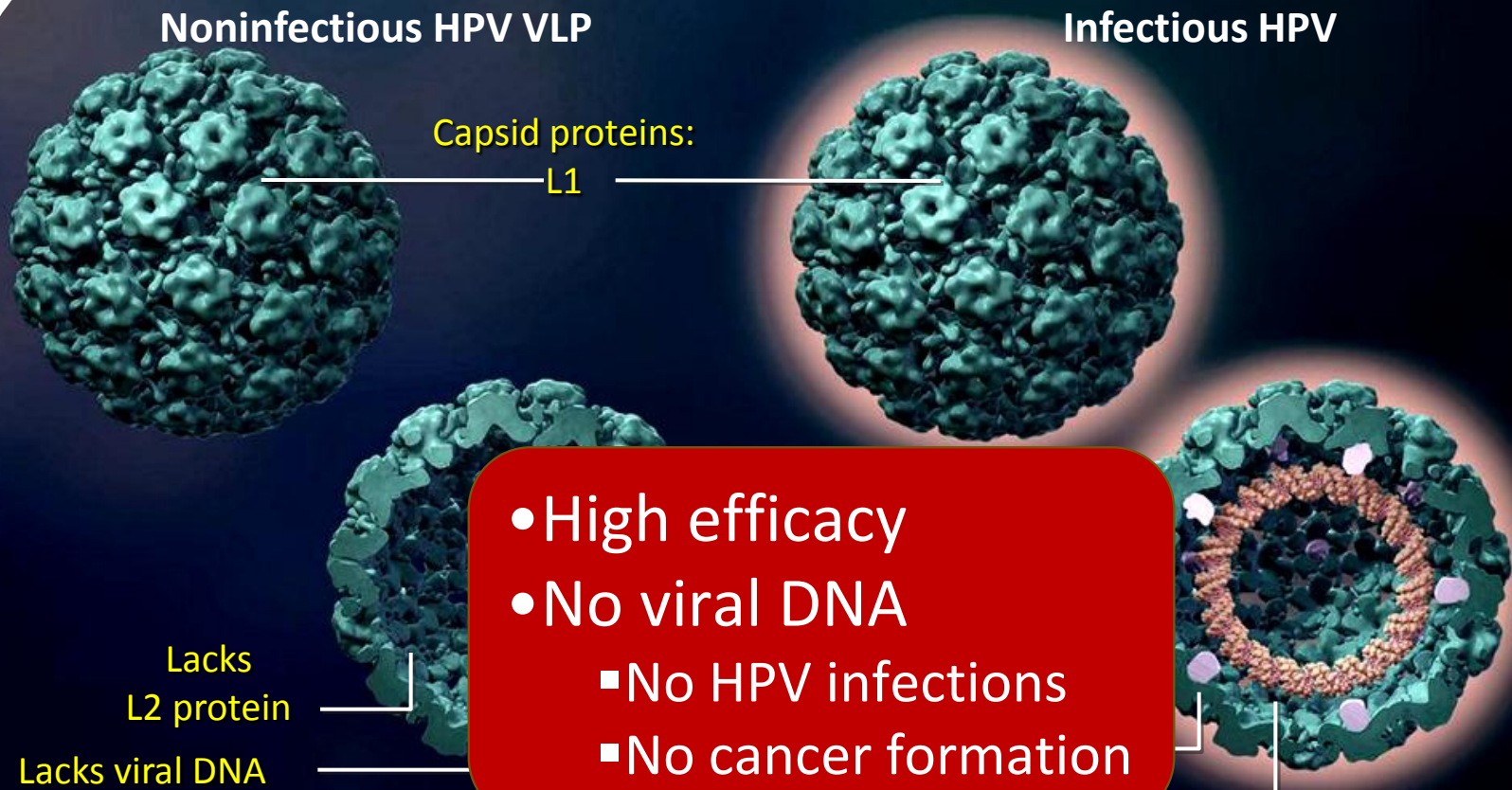
Boys and Men

Anal warts

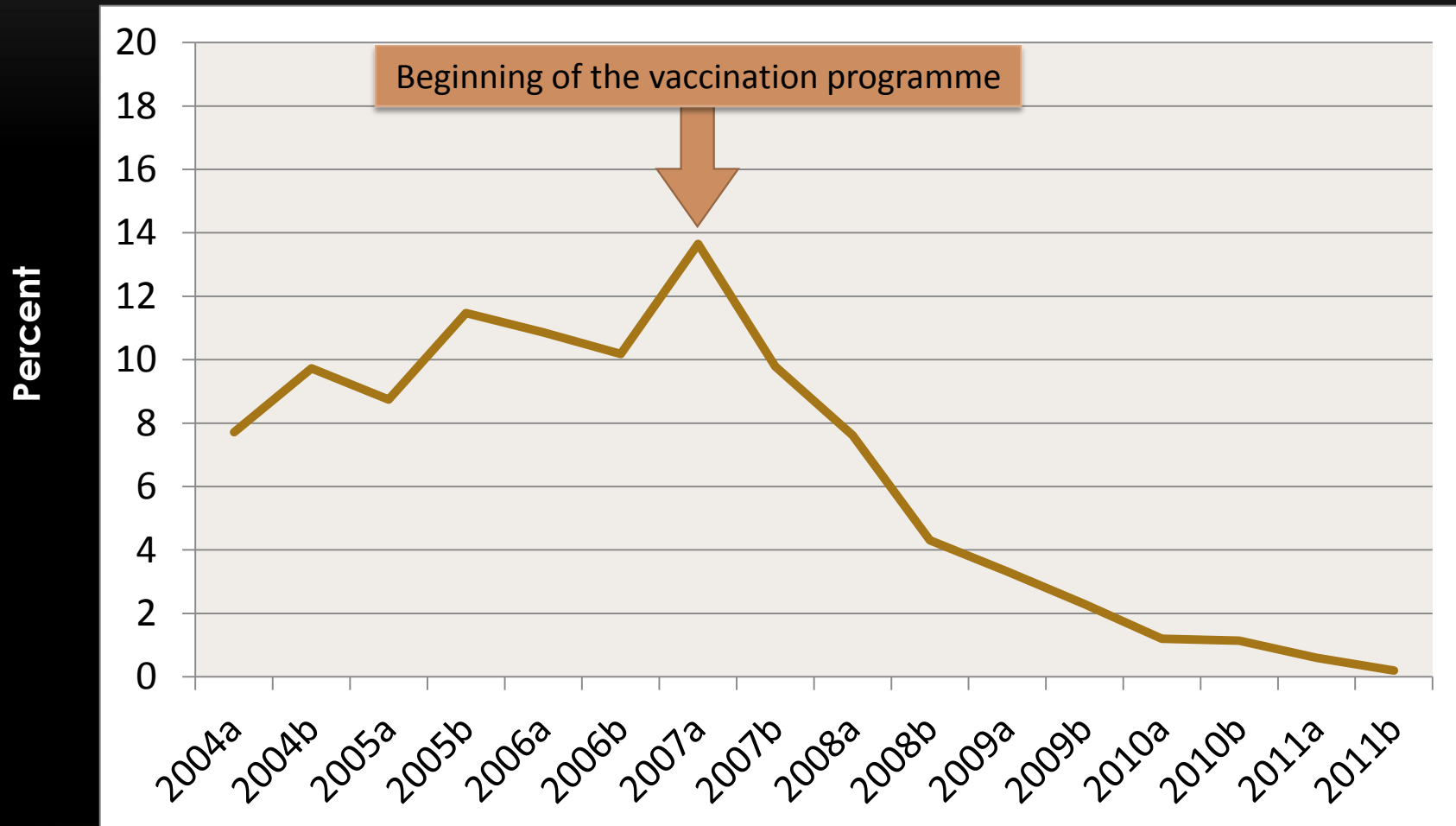
AIN and Anal  
cancer



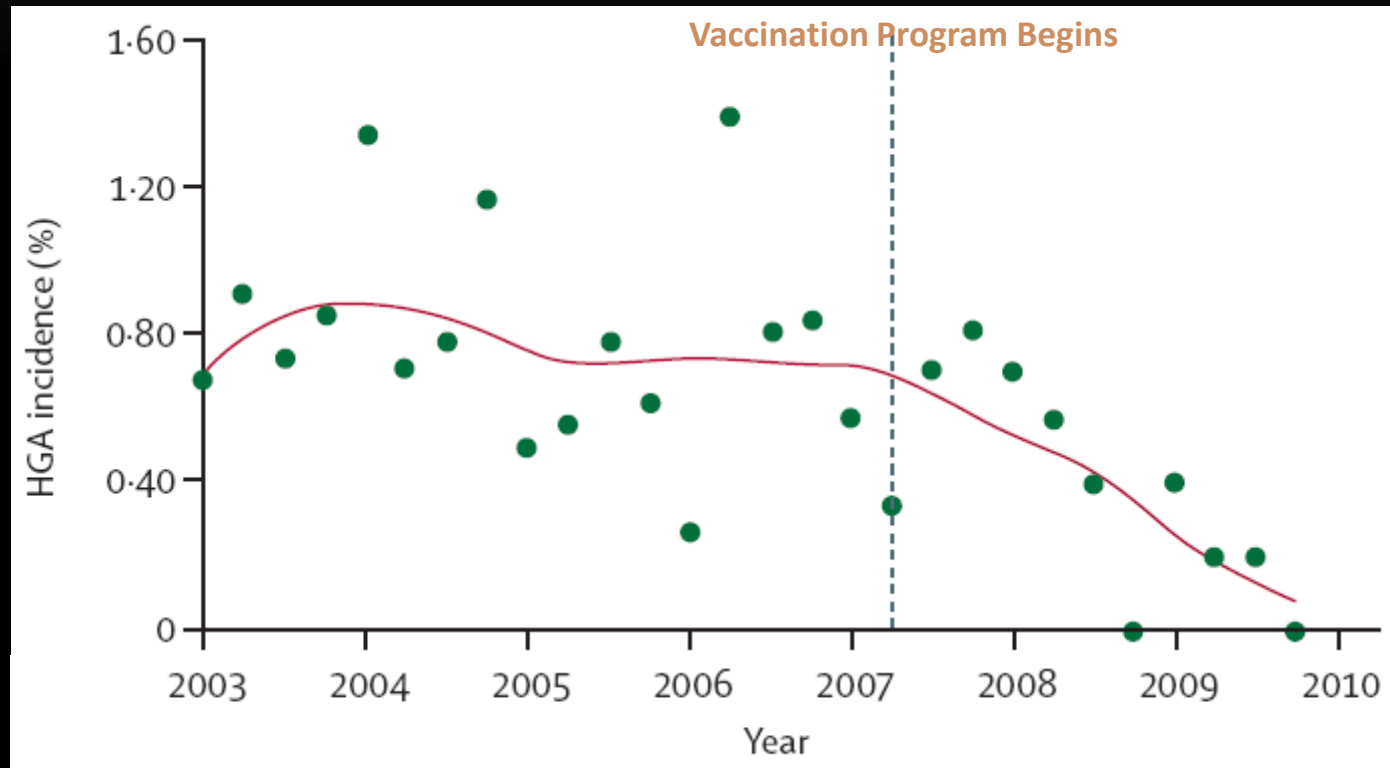
# HPV Virus-like Particles (VLPs)



# Proportion of Australian-Born Women Under 21 Years With Genital Warts

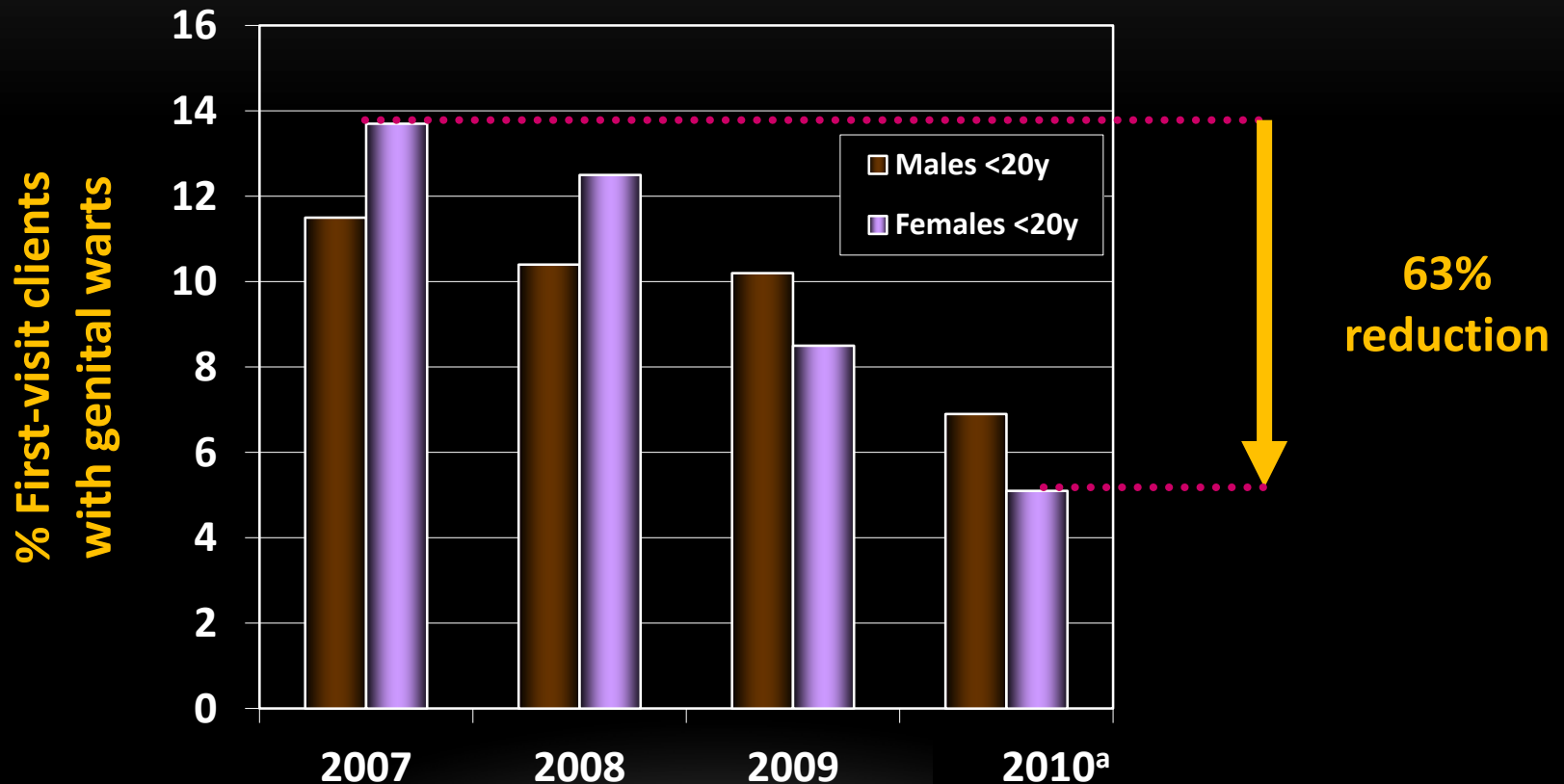


# HGAs in Women Aged <18 Years, Before and After Introduction of qHPV Vaccine



HGA: High Grade Cervical Abnormalities

# New Zealand: Impact on Genital Warts



<sup>a</sup>In 2010, data were collected only in the first 6 months: 40,793 new clients seen between 2007 and 2010; school-based program for 11–12-year-old girls, with catch-up for adolescents up to 20 years; vaccine coverage rate for Auckland DHB by end of 2009 school year=51.7%.

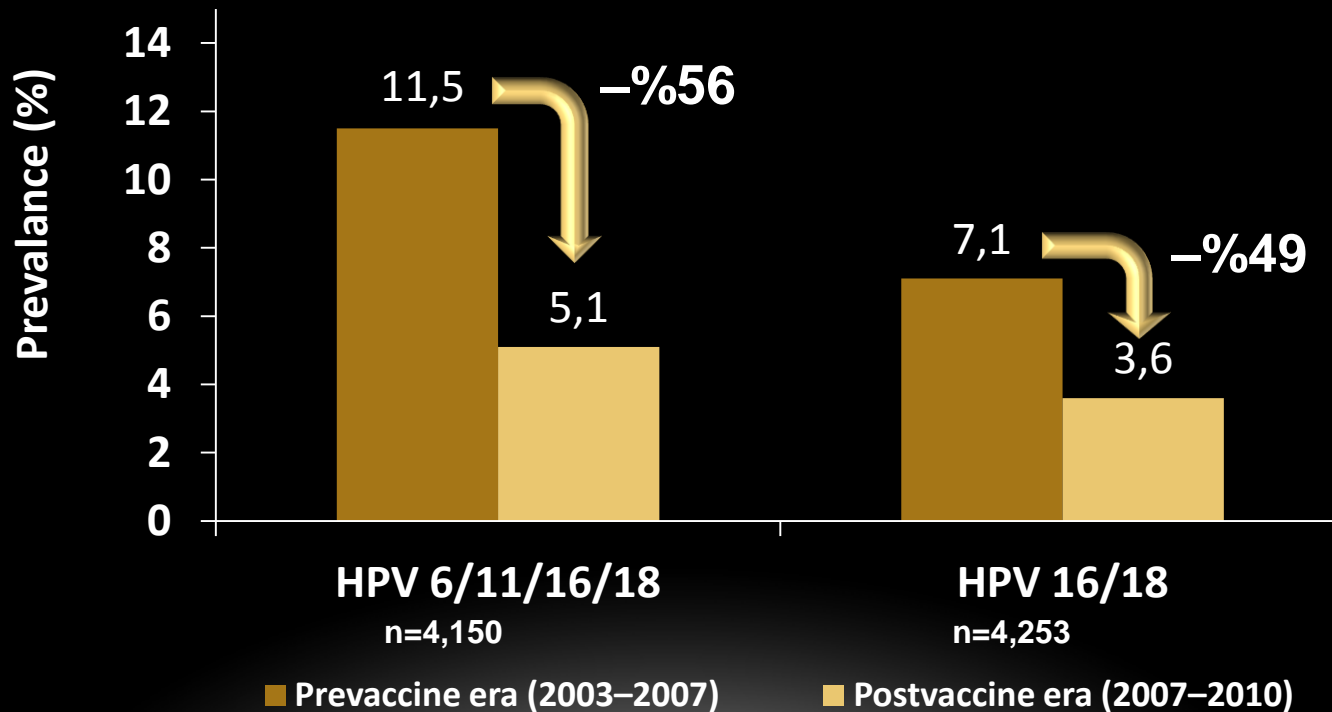
# Incidence of Genital Warts in California Following Introduction of qHPV Vaccine

## Results

- Average annual number of clients served:
  - >1,754,000 females
  - > 258,000 males
- Overall diagnoses of genital warts:
  - 0.7% of females
  - 3.3% of males
- In males and females, highest rates of genital warts were observed in young adults aged 21 to 25 years
  - Lowest rates among those aged >30 years
- Among females aged <21 years, diagnoses of genital warts decreased from 0.94% to 0.61% ( $P_{\text{trend}} < 0.001$ )
- Decreases also observed among females aged 21 to 25 years, males <21 years, and males aged 21 to 25 years

# Early Results of HPV Vaccination (NHANES Survey)

HPV types prevalence in 14-19 years girls (United States)



CI=confidence interval; NHANES=National Health and Nutrition Examination Survey.  
Markowitz L, Journal of Infectious Diseases Advance Access published June 19, 2013

# Incidence of Genital Warts in Belgium Following Introduction of qHPV Vaccine

## Results

- Population analyzed:
  - 55,193 females aged 16 to 20 years, of whom 13,117 were vaccinated with qHPV vaccine
- 435 cases of genital warts observed
  - 423 in nonvaccinated females
  - 12 in vaccinated females

	Vaccinated	Nonvaccinated	P value
Cumulative incidence estimates for genital warts	0.12%	0.93%	<0.0001

Nonvaccinated females aged 16 to 20 years were estimated to have 8 times greater risk of getting genital warts than vaccinated females.

# Early Indicators of the Real World

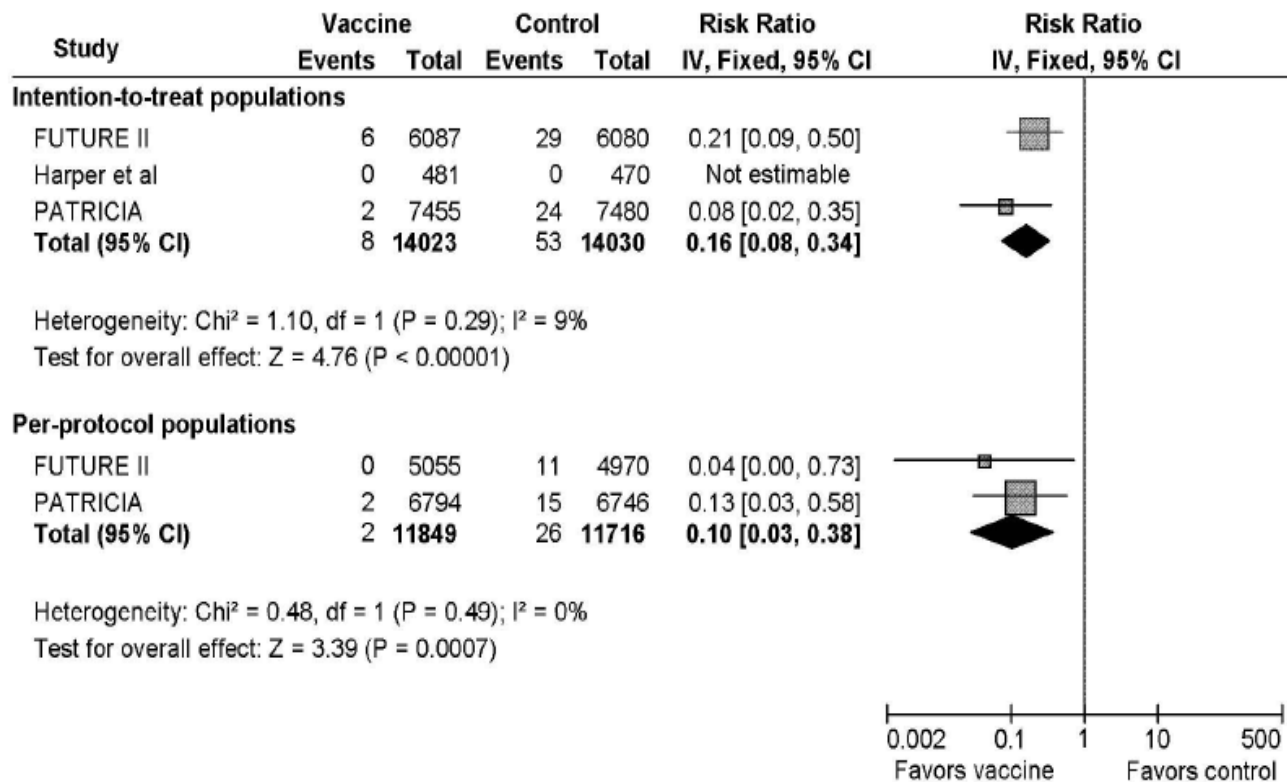
## Effectiveness of qHPV Vaccine: Summary

- Significant population level declines in genital warts have been observed since the qHPV vaccine was introduced
- Significant declines in the incidence of high-grade cervical abnormalities among young females in Australia
- Apparent decrease in HPV 16/18 infection among young females in Belgium
- The most significant decreases in disease or HPV infection seen in young females who were vaccinated (or who were likely vaccinated) with qHPV vaccine
- No evidence of disease reductions in older women or in men who have sex with men
- Data strongly suggest population-level impact of qHPV vaccination programs



# Efficacy of Prophylactic Vaccines: A Systematic Review & Meta-Analysis

## B. CIN2+ associated with HPV 18



## HPV Vaccination after HGSIL Treatment

- 2007-2010 cases# 737
- Monitored CIN2-3 after LEEP
  - 360 cases vaccinated
  - 377 cases w/o vaccination
- Recurrent disease with related HPV serotypes
  - Vaccinated group %2.5
  - Non-vaccinated group %8.5 (HR=2.840; CI: 1.335-6.042; p<0.01)

## Change in Sexual Behaviour after Vaccination

- Cases# 339 (13-21 Y girls)
- In period for STI, %42.5 cases had no sexual intercourse, % 57.5 cases had sexual experience before (OR 0.13, 95% [CI] 0.03–0.69)
- No change in sexual behaviour after HPV vaccination has shown

	All ( <i>n</i> = 339)	Sexually Experienced at Baseline ( <i>n</i> = 195)	Sexually Inexperienced at Baseline ( <i>n</i> = 144)	<i>P</i> value <sup>a</sup>
	Mean (SD)	Mean (SD)	Mean (SD)	
Risk perceptions (5-item subscales)				
Need for safer sexual behaviors <sup>b</sup>	1.6 (1.6)	1.6 (1.7)	1.5 (1.4)	0.59
STI risk perceptions <sup>c</sup>	3.9 (2.0)	3.7 (2.1)	4.0 (2.0)	0.18

## Targeted Group for HPV Vaccination

Vaccine introduction to 11-12 years of girls and boys

Preferred timing is before sexual intercourse

Catch-up vaccination for 13-26 years girls and women,  
13-21 years boys and men (except special groups)

Have indication for 45 years women, no age limit for  
bivalent vaccine

## HPV Vaccination to Whom and How (EMA)

- bHPV
  - 9-14 years girls (0.-6.)
  - >15 years girls and women 3 doses
- qHPV
  - 9-13 years boys and girls 2 doses (0.-6.)

# Gardasil® in Pregnancy

Outcome	Quadrivalent HPV vaccine		Placebo	
	No.	(%)	No.	(%)
Women with pregnancies	1,115	(10.7)	1,151	(12.6)
No. of pregnancies	1,244		1,272	
Infants/fetuses with known outcomes	996		1,018	
Live births*	621	(62.3)	611	(60.0)
Spontaneous miscarriage*	249	(25.0)	257	(25.2)
Late fetal deaths*	11	(1.1)	8	(0.8)
Congenital anomalies*	15	(1.5)	16	(1.6)

**Source:** Food and Drug Administration.

# Cervarix<sup>®</sup> in Pregnancy

Confidance results(TVC)	> 25 Y women		
	Cervarix <sup>®</sup>	HAV 720	Al(OH) <sub>3</sub>
Pregnancy#	28	3	20
Pregnancy Results, %			
Normal infant/continiuing pregnancy	82.1	100	55.0
Premature infant	-	-	-
Elective termination	10.7	-	25.0
Spontaneous abortus	7.1	-	20.0
Pregnancy in Vaccinated cohort#*	9	2	17
Pregnancy results, %			
Normal infant/continiuing pregnancy	77.8	100	52.9
Premature infant	-	-	-
Elective termination	11.1	-	29.4
Spontaneous abortus	11.1	-	17.6

**Category B**

## Vaccination in Pregnancy

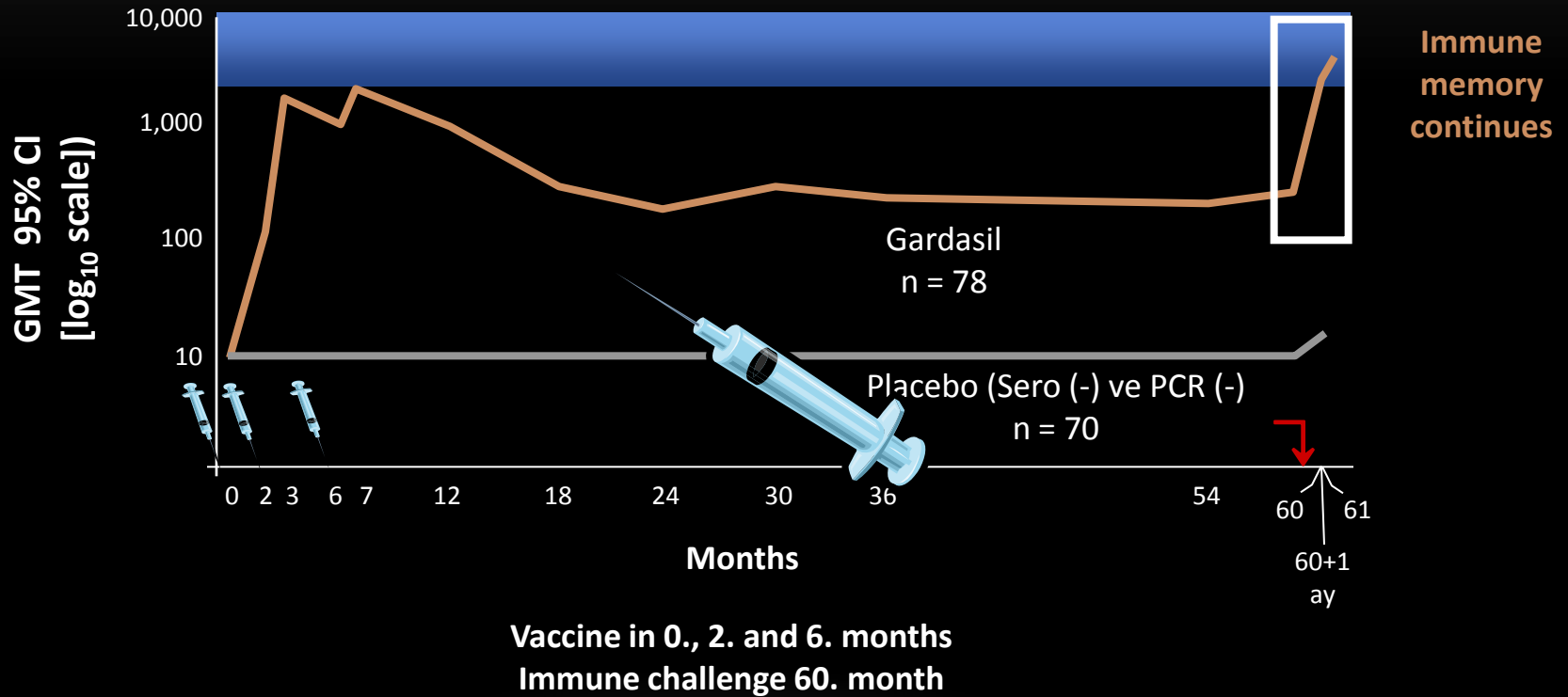
- Don't start vaccination in pregnancy
- If pregnancy noticed after first vaccination, 3 doses after birth beginning from the start
- If pregnancy noticed after 2 doses the last dose has to be administered after birth within 1 year
- Safe in breast feeding period



# Immunogenicity and Safety of qHPV Vaccine in HIV-1-Infected Women

- Multicenter, prospective trial among HIV-infected women aged 13-45 years
- Found that the qHPV vaccine was highly immunogenic
- But women with CD4 cell counts under  $<200$  cells/mm<sup>3</sup> had lower seroconversion rates compared with women higher CD4 cell counts

# Immune Memory



# Booster Dose





Advers Events

## Basından

- HPV aşısıyla ilgili yeni araştırma, ...
- “... Kanada’da bulunan İngiliz Kolombiya Üniversitesi’nden iki araştırmacı, hümmetlerin rahim ağzı kanseri aşısının zararsız olduğuna yönelik tavsiyelerini eleştirdiler.”

# Media

**ANN  
MED**

*Annals of Medicine*, 2011; Early Online, 1–12  
© 2011 Informa UK, Ltd.  
ISSN 0785-3890 print/ISSN 1365-2060 online  
DOI: 10.3109/07853890.2011.645353

REVIEW ARTICLE

## Human papillomavirus / ... the policy and evidence-based medicine: Are they ...

Lucija Tomljenovic ... Shaw<sup>1,2</sup>

<sup>1</sup>Neural ... Department of Ophthalmology and Visual Sciences, University of British Columbia, 828 W. 10th Ave,  
Vancouver, Canada and <sup>2</sup>Program in Experimental Medicine and the Graduate Program in Neuroscience, University of British  
Columbia, BC, Canada

**Tomljenovic L ve Shaw CA are not medical doctors!**

# Adverse Events

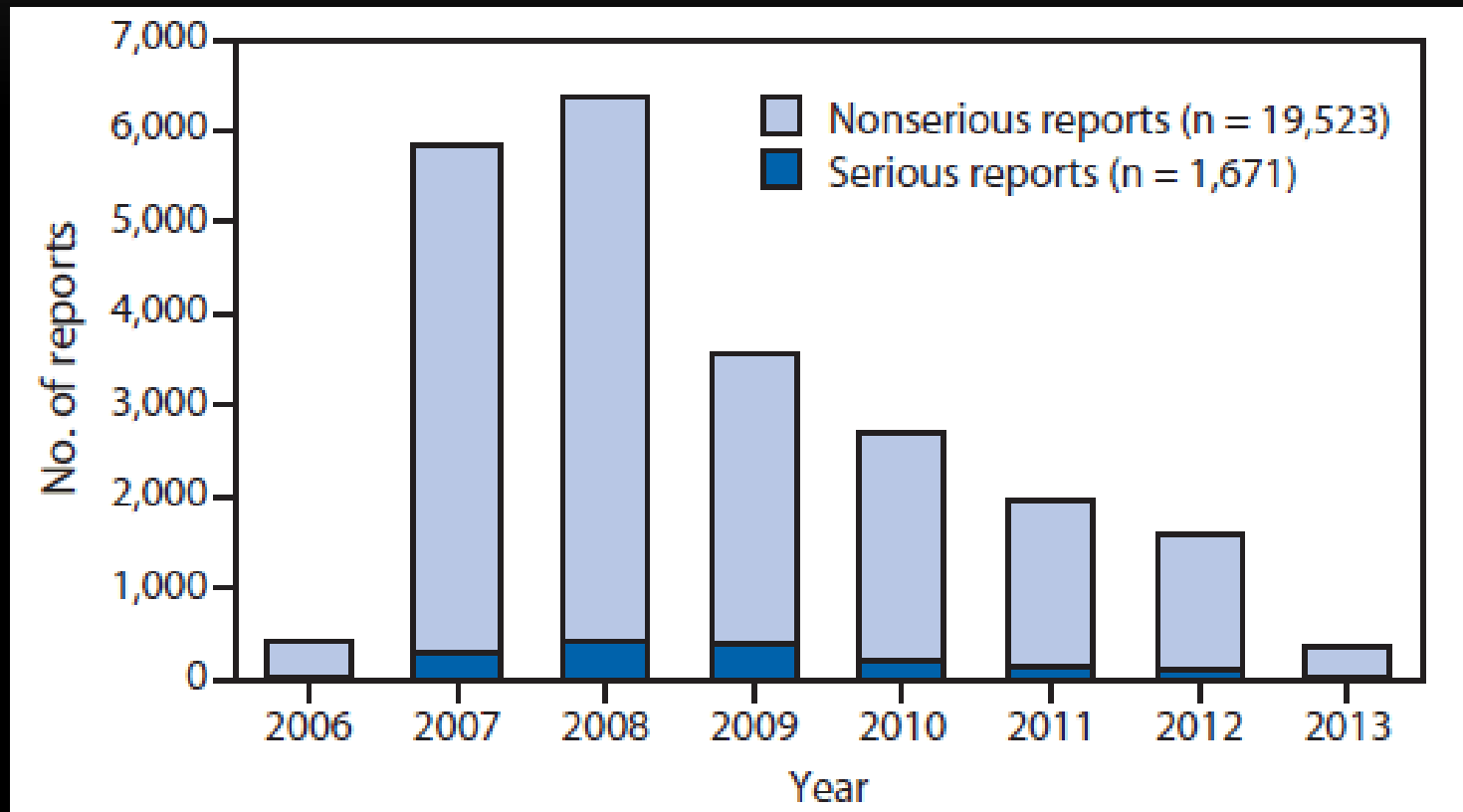
No relationship with vaccine virus related infection or cancer due to having no live or inactivated virus in vaccine composition

Local reactions;

- Erythema
- Little pain
- Swelling
- Fever

Nausea, dizziness, blackout

# Adverse Events



Total AE (severe and mild) = 21.194/ 56 million doese

The Vaccine Adverse Event Reporting System (**VAERS**) severe AE's;

hospitalization, prolonged hospitalization, constent disability, severe diseaseses for mortality



# Deaths

- 32 deaths in clinical studies
- **None of them are related to vaccines**
- Cause of mortalities
  - Viral infections; akut myocarditis, meningoensefalitis, influenza B viral sepsis
  - Cardiac aritmia due to cardiomyopathy
  - Diabetic ketoacidosis
  - Epileptic attack in epileptic patients
  - Pulmoner emboli, DVT
  - Over limit uptake in drug abusers
  - Traffic accident
  - Other drugs
  - Murdery

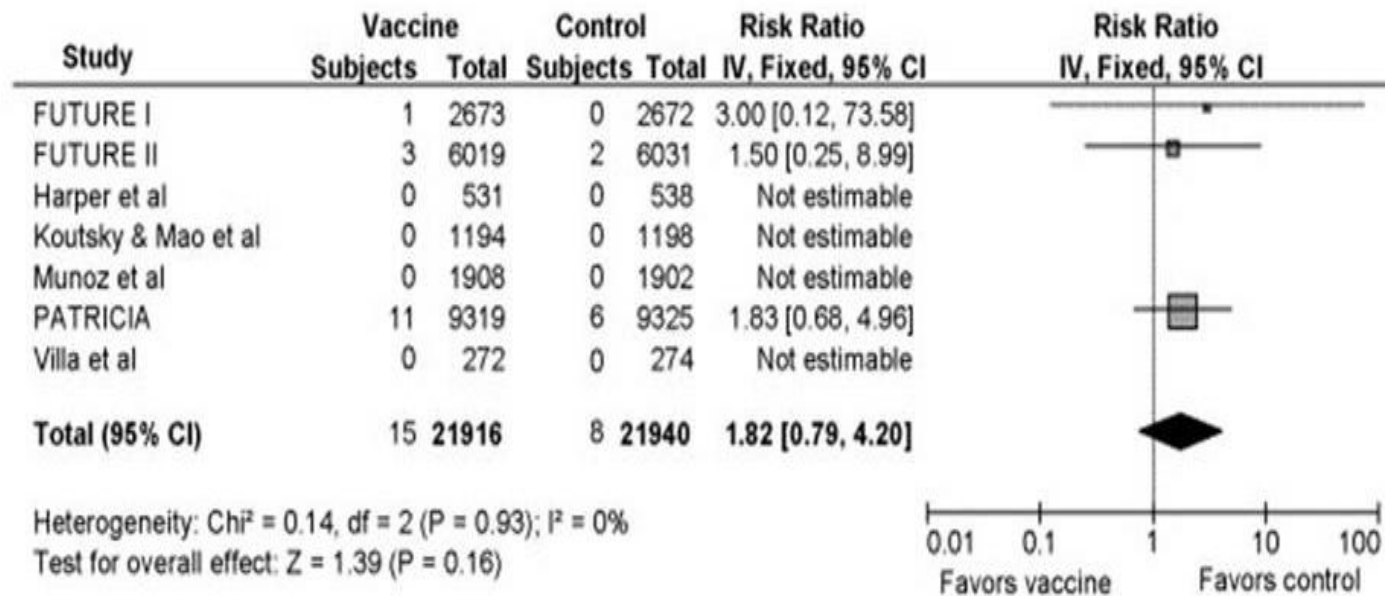
# Autoimmune Diseases

Summary of Girls and Women 9 Through 26 Years of Age Who Reported an Incident Condition Potentially Indicative of a Systemic Autoimmune Disorder After Enrollment in Clinical Trials of GARDASIL, Regardless of Causality

Conditions	GARDASIL (N = 10,706)	AAHS Control* or Saline Placebo (N = 9412)
	n (%)	n (%)
Arthralgia/Arthritis/Arthropathy**	120 (1.1)	98 (1.0)
Autoimmune Thyroiditis	4 (0.0)	1 (0.0)
Celiac Disease	10 (0.1)	6 (0.1)
Diabetes Mellitus Insulin-dependent	2 (0.0)	2 (0.0)
Erythema Nodosum	2 (0.0)	4 (0.0)
Hyperthyroidism***	27 (0.3)	21 (0.2)
Hypothyroidism†	35 (0.3)	38 (0.4)
Inflammatory Bowel Disease‡	7 (0.1)	10 (0.1)
Multiple Sclerosis	2 (0.0)	4 (0.0)
Nephritis¶	2 (0.0)	5 (0.1)
Optic Neuritis	2 (0.0)	0 (0.0)
Pigmentation Disorder§	4 (0.0)	3 (0.0)
Psoriasis#	13 (0.1)	15 (0.2)
Raynaud's Phenomenon	3 (0.0)	4 (0.0)
Rheumatoid Arthritis††	6 (0.1)	2 (0.0)
Scleroderma/Morphea	2 (0.0)	1 (0.0)
Stevens-Johnson Syndrome	1 (0.0)	0 (0.0)
Systemic Lupus Erythematosus	1 (0.0)	3 (0.0)
Uveitis	3 (0.0)	1 (0.0)
<b>All Conditions</b>	<b>245 (2.3)</b>	<b>218 (2.3)</b>

# Safety of Prophylactic Vaccines: A Systematic Review & Meta-Analysis

## B. Injection-related serious adverse events





Society of Gynecologic Oncology

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**YOU ARE THE KEY TO  
CANCER PREVENTION**

SGO is committed to partnering with organizations that share our vision to eradicate gynecologic cancers.

### [Join the HPV Vaccine Campaign](#)

Working together to prevent cervical cancer, SGO and the [Centers for Disease Control and Prevention \(CDC\)](#) encourage SGO members to connect with pediatricians and others who are in a position to provide the vaccination against human papillomavirus (HPV) to boys and girls.

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## SGO Position Statement: HPV Vaccination of Girls and Boys

December 2013

As the health care providers for women who suffer from cervical and lower genital tract cancers, members of the Society of Gynecologic Oncology (SGO) have long been primary advocates for the prevention of cervical and other human papillomavirus (HPV)-related cancers. SGO strongly supports vaccination of both girls and boys against HPV to prevent HPV-related cancers. Use of these vaccines, coupled with recommended cervical cancer screening, would eliminate most cervical cancer. Other cancers associated with HPV including cancer of the vulva, vagina, anus, penis, and some head and neck cancers may also be prevented with use of the HPV vaccine.

The Centers for Disease Control and Prevention and the Food and Drug Administration has monitored the safety of the HPV vaccines since the FDA licensed them in 2006 and 2009. In the 57 million doses administered from June 2006 through March 2013, there were no new or unusual patterns of adverse events to suggest any safety concerns.



The American College of  
Obstetricians and Gynecologists  
WOMEN'S HEALTH CARE PHYSICIANS

# COMMITTEE OPINION

Number 588 • March 2014

*(Replaces Committee Opinion Number 467, September 2010)*

## **Committee on Adolescent Health Care**

*This Committee Opinion was developed with the assistance of the Immunization Expert Work Group. The document reflects emerging clinical and scientific advances as of the date issued and is subject to change. This information should not be construed as dictating an exclusive course of treatment or procedure to be followed.*

## **Human Papillomavirus Vaccination**

# ACOG Recommendations

# ACOG Recommendations (2014)

## Human Papillomavirus Vaccination

**ABSTRACT:** The Advisory Committee on Immunization Practices of the Centers for Disease Control and Prevention recommends that human papillomavirus (HPV) vaccination routinely be targeted to females and males aged 11 years or 12 years as part of the adolescent immunization platform to help reduce the incidence of anogenital cancers and genital warts associated with HPV infection. The quadrivalent HPV vaccine is approved for use in males and females, whereas the bivalent HPV vaccine is approved for use only in females. For those not vaccinated at the target age, catch-up vaccination is recommended up to age 26 years. The American College of Obstetricians and Gynecologists endorses these recommendations. Although obstetrician–gynecologists are not likely to care for many patients in the initial HPV vaccination target group, they have the opportunity to educate mothers about the importance of vaccinating their children at the recommended age and are critical to vaccinating adolescent girls and young women during the catch-up period. Obstetrician–gynecologists should advise patients and parents that HPV vaccines are most effective in preventing genital cancers when administered before the onset of sexual activity. However, sexually active individuals can receive some benefit from the vaccination because exposure to all HPV types prevented by the vaccines is unlikely in persons aged 13 years through 26 years. Although HPV vaccination in pregnancy is not recommended, neither is routine pregnancy testing before vaccination. Lactating women can receive either HPV vaccine. The need for ongoing cervical cytology screening should be emphasized in all women aged 21 years and older, even those who received HPV vaccination before the onset of sexual activity.

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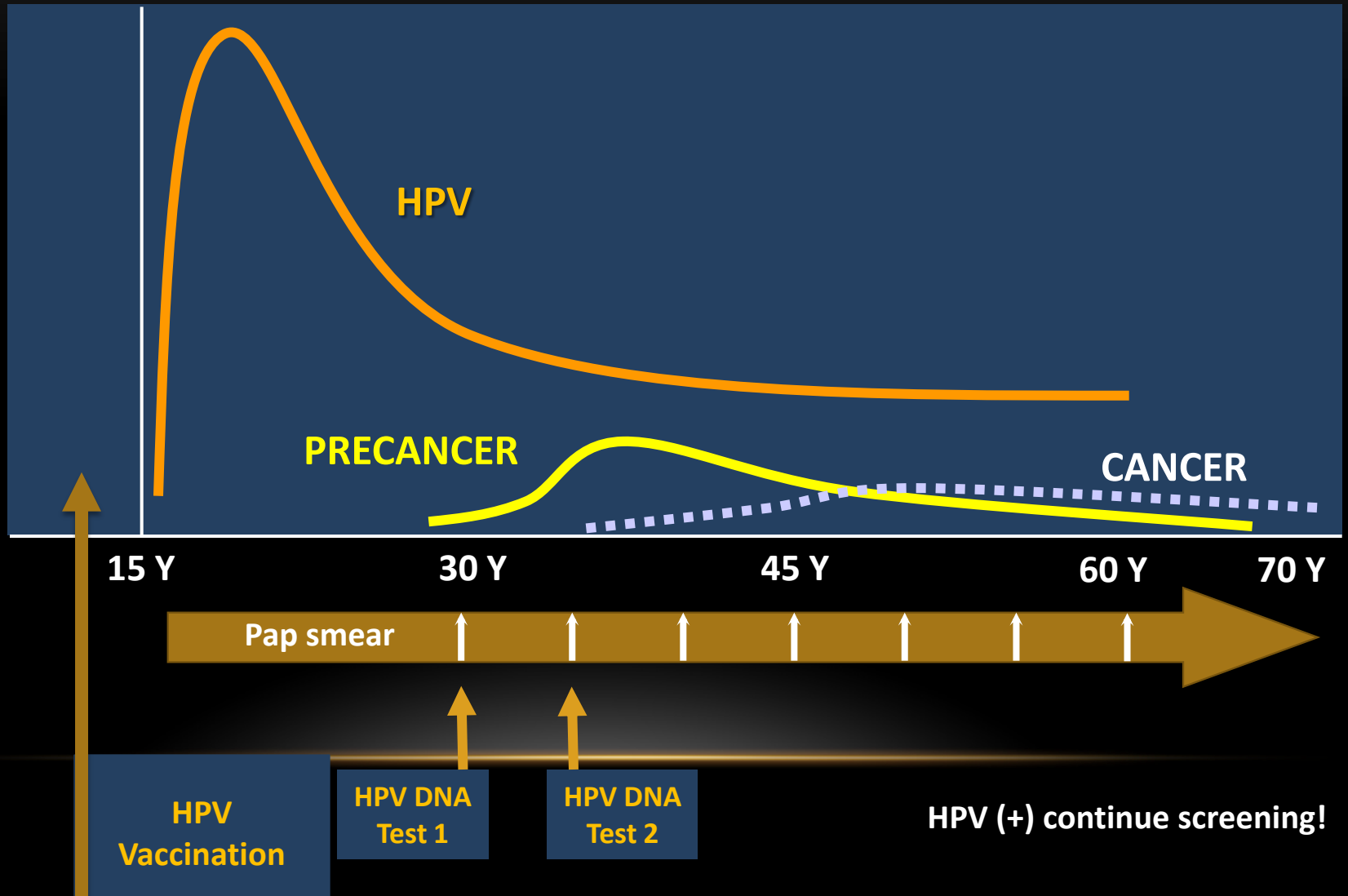
## Need for screening ?

### Absolutely Yes

- Vaccine not effective to all serotypes
- Vaccine immunogenicity can be reduced due to improper compliance to vaccination schedules
- There can be infections due to non vaccine serotypes before vaccination started



# Implemented and Future Strategies in Cx Ca Screening



## Messages to Take Home

# Important Problems

Non evidence based messages in media

Investment to screening and vaccination

Prioritization for NIP inclusion

Infrastructure for adolescent vaccination

## Messages to Take Home

For any country ; If HPV vaccines will be purchased with adequate prices, it's not acceptable with an ethical and political view to exclude HPV vaccination from NIP

**Thank You for Your Attention!**

