



香港陰道鏡及子宮頸病理學會

The Hong Kong Society for Colposcopy and Cervical Pathology



HPV disease prevention

Gender neutral vaccination via National immunisation program

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Madonna of Asia,
Anita Mui,
died of Cervical Cancer at the
prime of her life



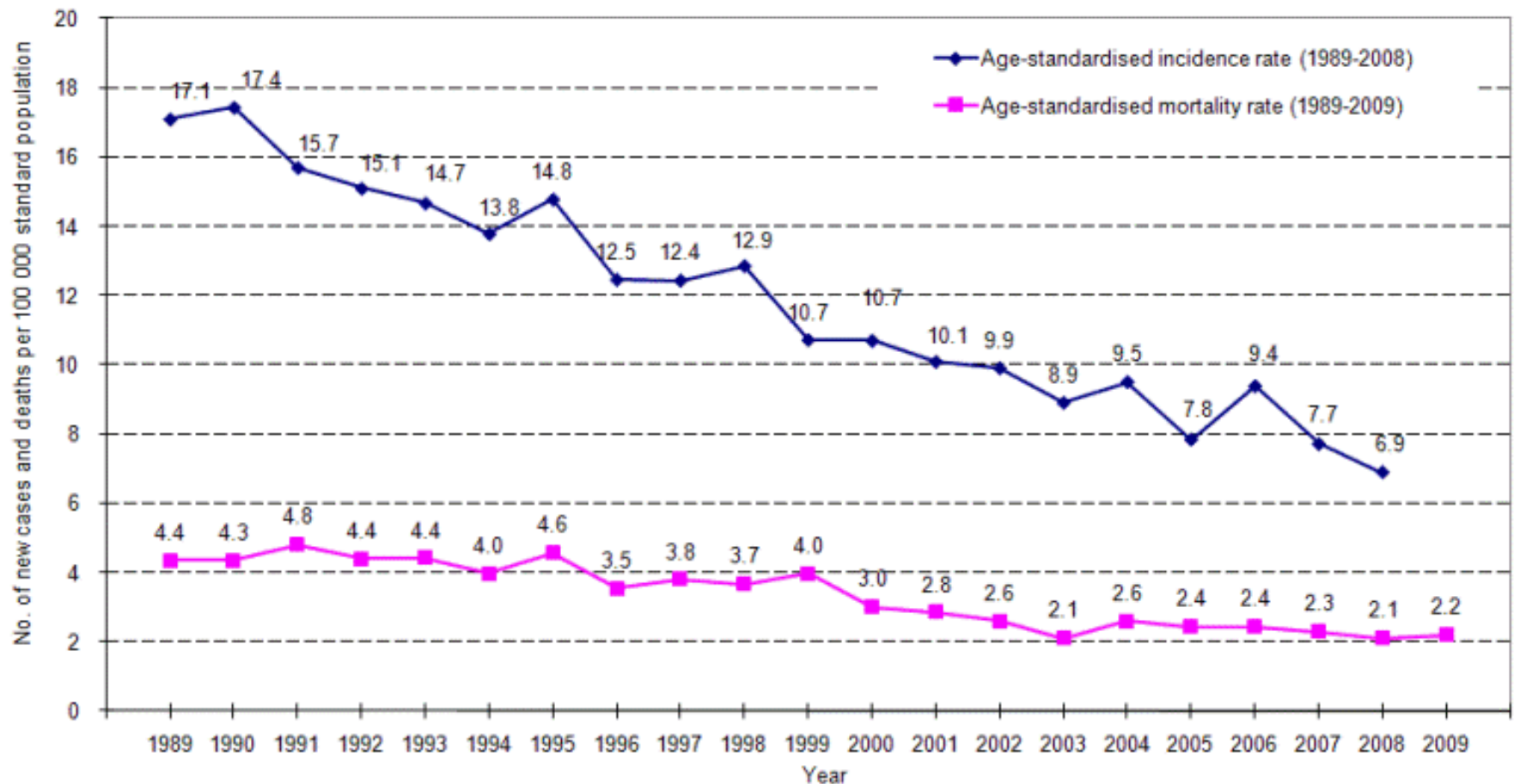
The following issues will be discussed in this CME lecture:

- The implementation of NIP experience in Malaysia
- How to collaborate with government
- The coverage of HPV vaccine
- Monitoring and education on cervical cancer prevention
- Public health impact after implementation of HPV NIP in Australia
- Any impact to screening system
- Consideration for universal male vaccination



About 400 new cases of cervical cancer per annum

Trend of Age-standardised Incidence¹ and Mortality Rates²⁻⁴ of Cervical Cancer in Hong Kong (1989–2009)



主動保護自己
向子宮頸癌Say No!



答案就在今天
立即請教醫生如何
避免「HPV」病毒感染
更多有關資訊，請登上
www.hpv.com.hk

醫學界已可預防由「HPV病毒」 引發的「子宮頸癌」

- 99.7%子宮頸癌是由HPV病毒引起*
- HPV病毒是十分普遍，可透過性接觸傳播，而即使受感染亦不易察覺*
- 可幸醫學界已可預防由HPV病毒引發的子宮頸癌*
- 今天起，主動保護自己，立即向醫生查詢，進一步幫助減低子宮頸癌威脅

* 大部份的人類在感染HPV病毒後都不會覺察可以自行痊癒，亦一定會引起明顯的副作用。

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全球每一分鐘大約有
一人診斷患上子宮頸癌

子宮頸癌主要是由人類乳頭瘤狀病毒 (Human Papillomavirus, HPV) 感染引起⁴。
HPV 病毒有超過二百多種⁵，而其中最常見的是 **HPV 6, 11, 16 及 18 型**¹。
HPV 16, 18 是引致 **70% 子宮頸癌** 的元兇，另外更會引致**外陰癌及陰道癌**⁶。
而 HPV 11 與 HPV 6 能引致 **90% 椰菜花** (生殖器官濕疣)，以及約**一成的
早期癌前病變 (CIN 1)**^{3,5}。

子宮頸癌的元兇 — **HPV** 病毒

Learn everything I can

HPV 相關疾病 — 全球每年確診個案

每年 500,000 宗子宮頸癌新症 ⁸	全球每一分鐘大約有一人診斷患上子宮頸癌 ⁹
每年 10,000,000 宗 二 / 三期癌前病變新症 ⁷	子宮頸癌或癌前病變的治療雖然有效，但仍有可能導致一些後遺症，如生活質素受損、擔心癌症復發或無法懷孕等 ¹⁰ 。
每年 30,000,000 宗 早期癌前病變新症 ⁷	早期癌前病變可透過柏氏抹片檢測；一份英國研究指出，若女性不幸地收到不正常的測試報告，身心都會有沉重負擔，她們會感到沮喪、無助、注意力減弱甚至失眠 ¹¹ 。
每年 30,000,000 宗 椰菜花新症 ⁴	椰菜花的病發率比子宮頸癌高 60 倍；即約一秒便有一人診斷患上椰菜花 ¹² 。 患者除了要費費心理及金錢負擔，更要長期承受疾病經常復發 ¹³ 。

由此看來，HPV 感染所帶來的影響可能超乎想像。

雙重保護，
對抗子宮頸癌：
**定期抹片檢查
+ 接種疫苗**
是預防的
最好方法！



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Centre for Health Protection

Department of Health

The Government of the Hong Kong Special Administrative Region



衛生防護中心

Centre for Health Protection

Scientific Committee on Vaccine Preventable Diseases
Scientific Committee on AIDS and Sexually Transmitted
Infections

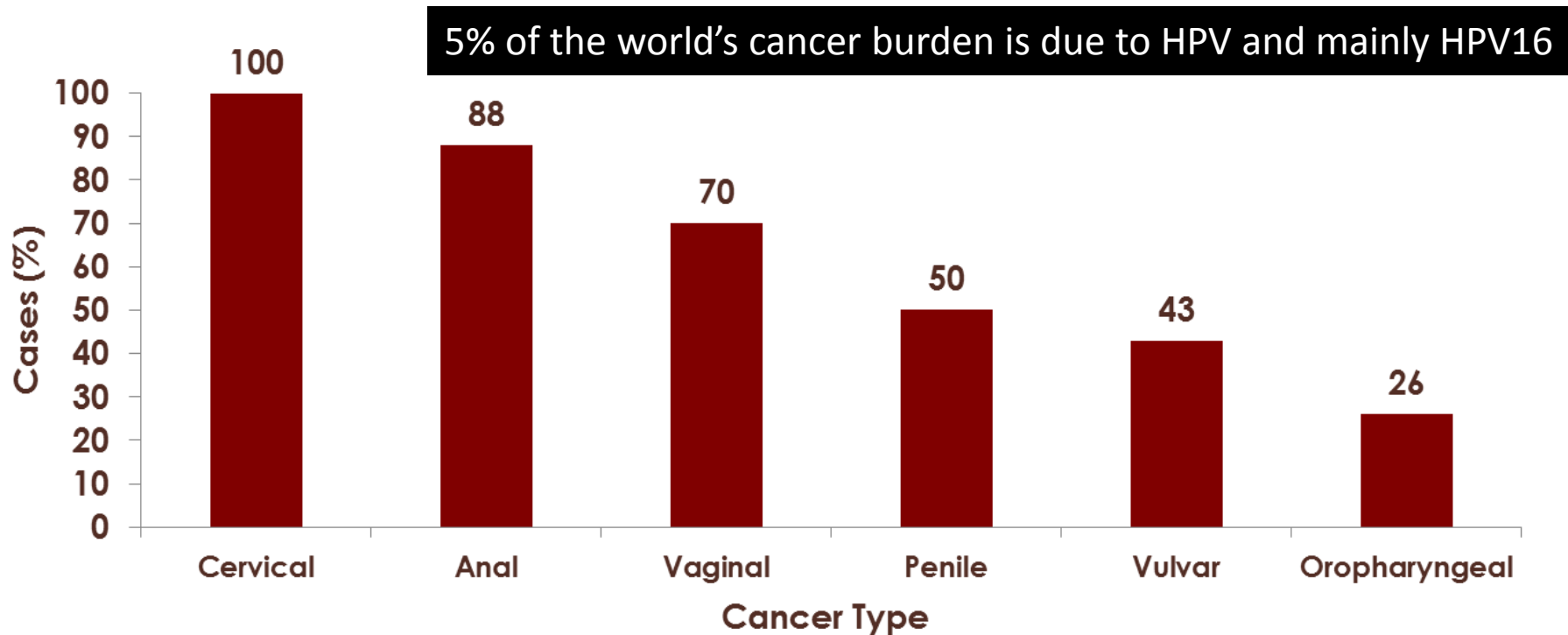
Recommendation on the
Use of Human Papillomavirus (HPV) Vaccine

- Cervical cancer is 8th leading cause of death in females however only 70% have had at least 1 smear (25-64yrs)
(Behavioural risk factor surveillance 2004-2012)
-it's applicability in Hong Kong should be **further examined**.... could be **considered** for introduction into HK's universal vaccination programme....must be supported by local **economic evaluation**. Information on logistics, feasibility and acceptability of such a programme, **compared to alternative** programmes should also be sought



Multiple Cancer Types Are Related to HPV

Estimated Percentage of Cancer Cases Attributable to HPV¹

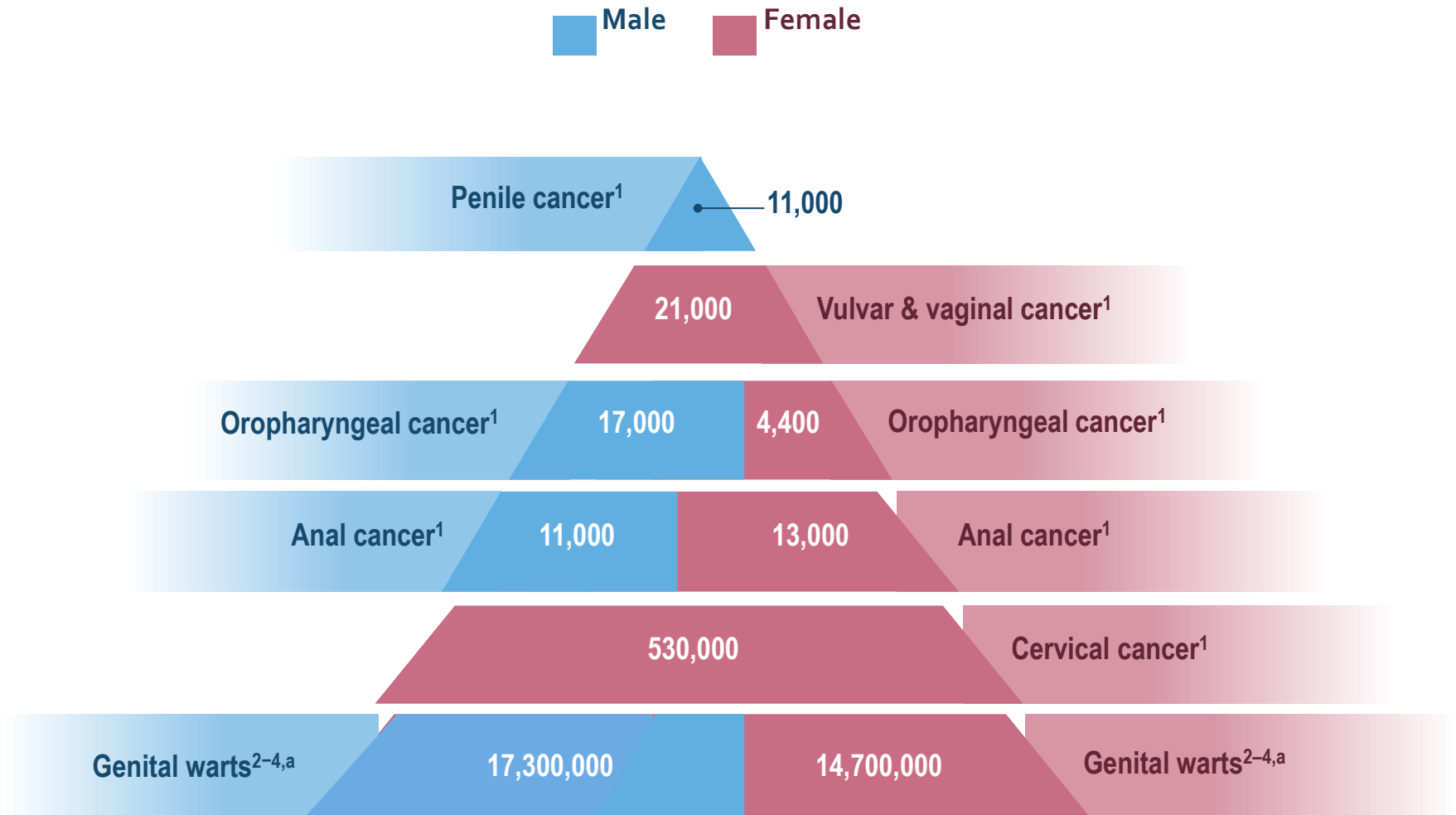


Data for oropharyngeal cancers vary from 26%¹ to 63%.^{1,2}

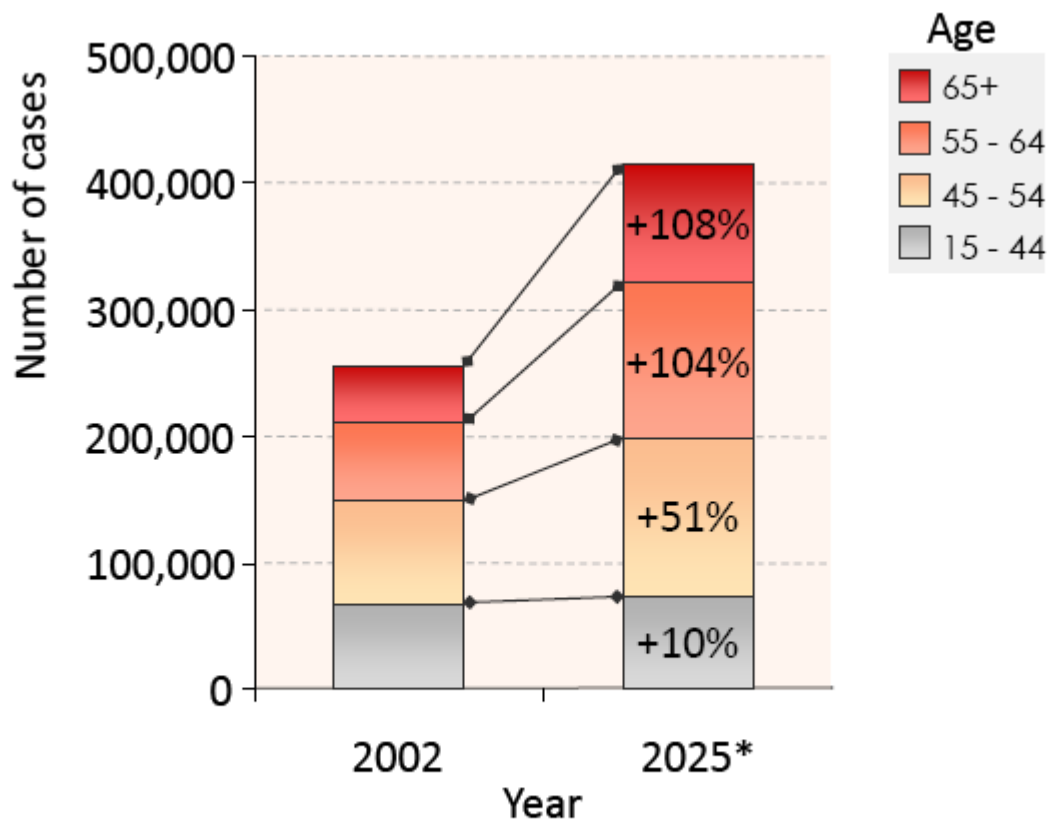
1. Forman D et al. *Vaccine*. 2012;30(Suppl 5):F12–23. 2. Centers for Disease Control and Prevention (CDC). *Epidemiology and Prevention of Vaccine-Preventable Diseases*. 12th ed. Washington DC: Public Health Foundation, 2012.

<http://www.cdc.gov/vaccines/pubs/pinkbook/downloads/hpv.pdf>. Accessed March 15, 2013.

HPV related pathology in men and women



Estimated new cases of cervical cancer in Asia in 2002 and projected in 2025



** Projected burden, assuming that current incidence rates will apply in the future, and incorporating population forecasts for the region.*

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Press Release

HPV linked to a third of throat cancers







Saturday 20 July 2013**Cancer Research UK Press Release**

Infection with certain types of the [HPV](#) virus significantly increases the risk of oropharyngeal cancers – cancers in the back of the throat – according to a study involving Cancer Research UK scientists at the University of Oxford, published in the Journal of Clinical Oncology (JCO) today.

The researchers compared blood samples from 938 patients with head and neck, oesophageal (gullet) and oropharyngeal cancers with 1599 people without the disease.

They found that more than a third of those who had oropharyngeal cancers also carried antibodies to one of HPV's key cancer-causing proteins – a protein from the HPV16 virus called E6 – and these antibodies could be detected in patient's blood even in samples taken over 10 years before the cancer was diagnosed.



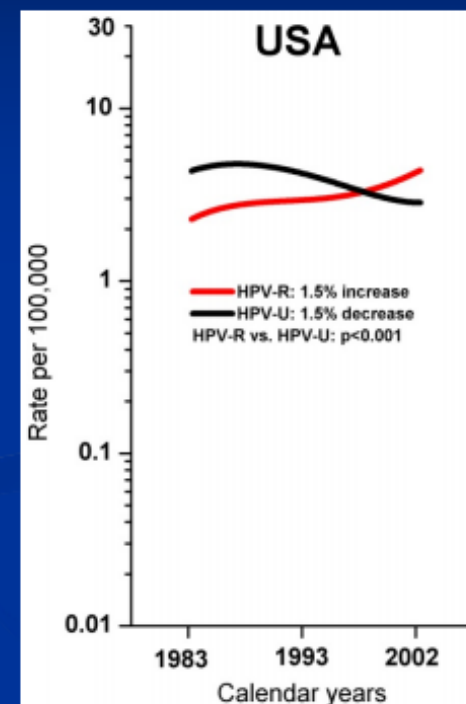
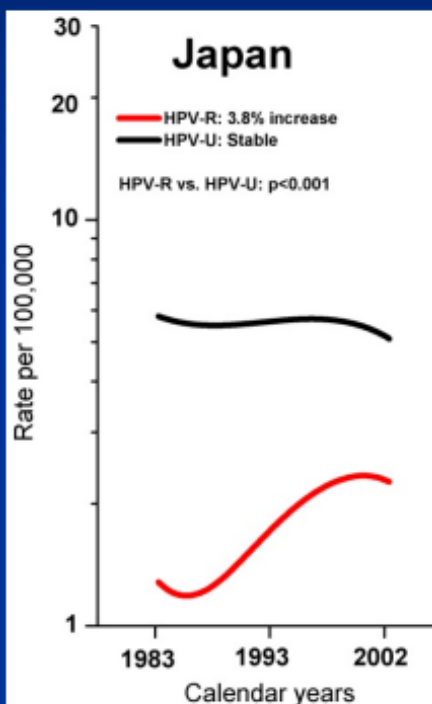
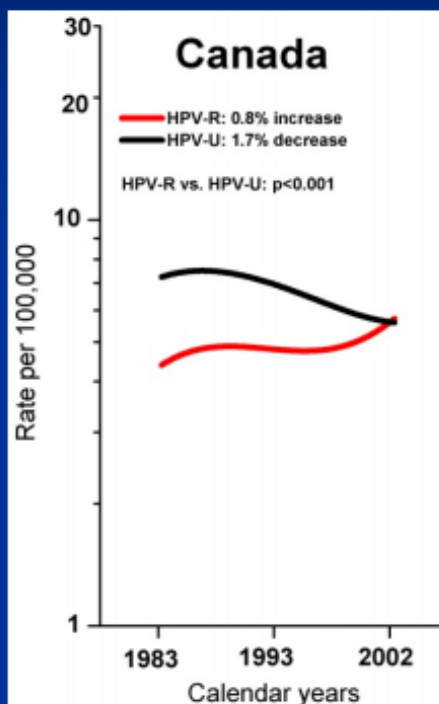
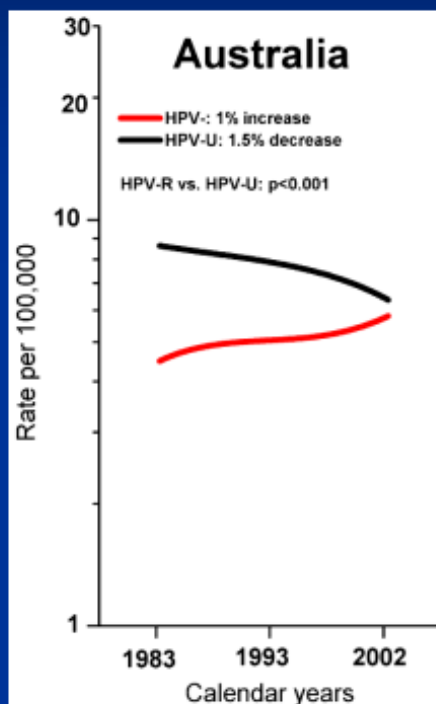
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“These striking results provide some evidence that HPV16 infection may be a significant cause of oropharyngeal cancer.”



Dominant role of HPV in head and neck cancers in men in the developed world



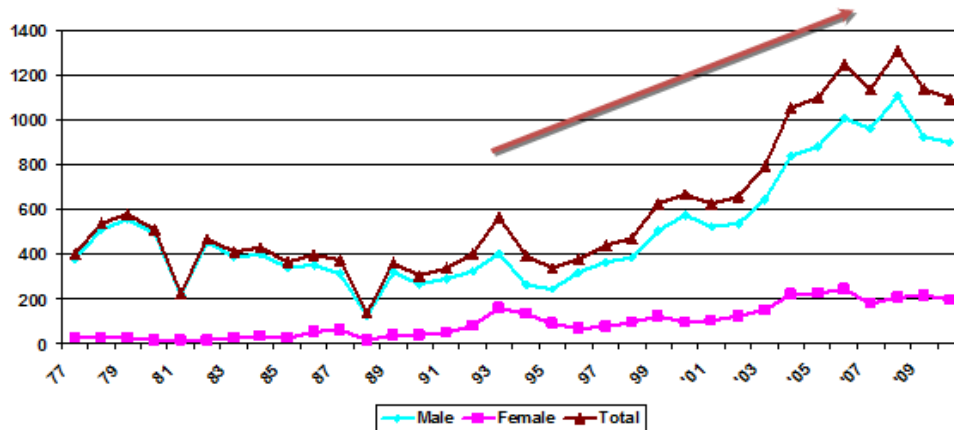
HPV related head and neck cancers



HPV unrelated head and neck cancers

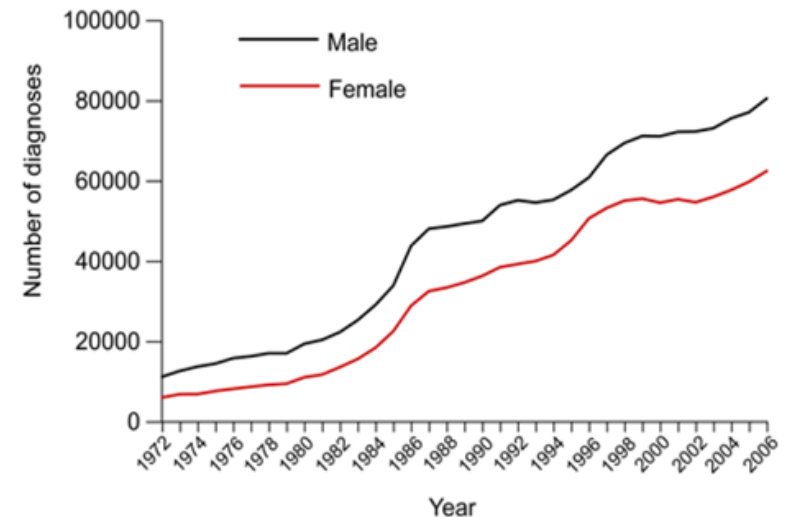
Exponential rise in genital warts

Genital Warts in England and Wales 1971-2006



Data from National Skin Centre

Figure 1 Diagnoses of genital warts (first, recurrent and re-registered) seen in GUM clinics in England, Wales and Scotland: 1971 to 2006



Genital Warts in Singapore 1977-2010

**Indicators that HPV infection and
related pathology on the rise**

in both men and women!

Breakaway: The global burden of cancer— challenges and opportunities

A report from the Economist Intelligence Unit



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Summary

- > In 2008, there were 12.4 million new cancer cases and 7.6 million cancer deaths worldwide
- > Lung cancer burden, in terms of incidence and mortality, is among the highest in the world
- > More than half of cancer cases and 60% of deaths occur in the less-developed countries
- > There are striking variations of cancer patterns by site from region to region
- > Future cancer burden will be influenced by trends in the elderly population of both the less-developed and more-developed areas
- > The role of prevention in cancer control programmes (tobacco control, vaccination, screening) will increase in the coming decades

The case for prevention

Escalating health care costs

HEALTH CARE COMPARISON

	US	UK	AUSTRALIA
 Cost of a Hospital Bed (per day)	\$907	\$126	\$139
 Cost of Bed in Intensive Care	\$1,616	\$224	\$246
 Cost of a Visit to the Doctor	\$366	\$49	\$25
 Cost to See a Specialist	\$768	\$102	\$115
 Life Expectancy	77.5	78.5	80.5

Prepare for high medical costs in retirement

Medicare, on average, will cover only about half of your medical expenses. And the amount you need to save to cover the difference has been rising sharply:

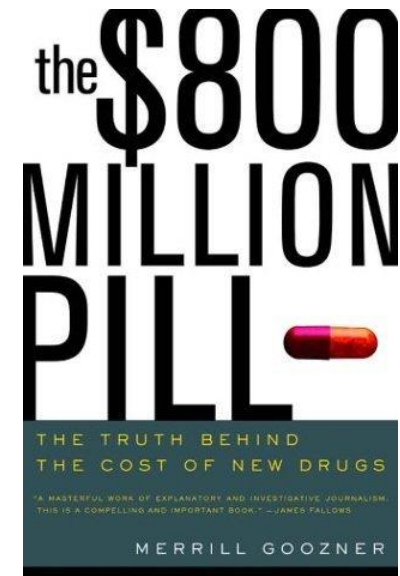
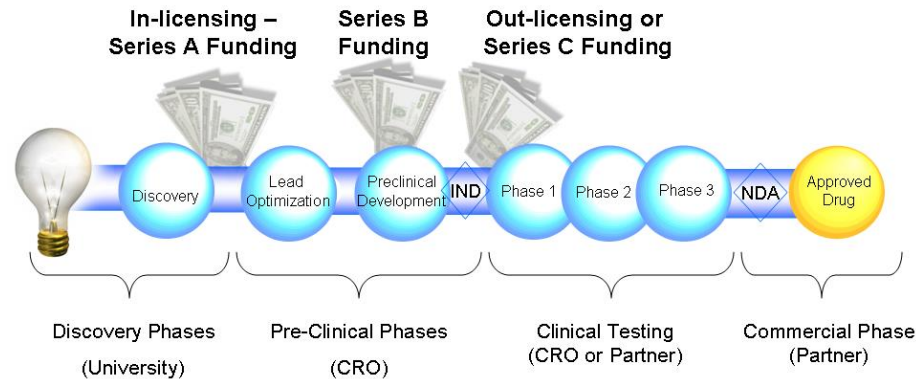
Savings a 65-year old couple need for health care in retirement:

IN 2002	IN 2009
\$160,000	\$240,000

Rising costs of diagnostic technology and cancer drugs



Drug Development Pipeline



Proton-beam therapy with IBM technology

Processes the "Big Data" sets used in radiation treatment to quickly determine the right course of treatment for specific tumors.



The patient is wheeled directly from MRI to beam-therapy machine.

Diagnosing the patient, calculating treatment variables and calibrating the machine can be done in **15 minutes**, instead of one week.

With real-time computing, the machine will be able to generate up to

5 million specific treatment options instead of the **100 generally available today.**



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Who's To Blame For Our Rising Healthcare Costs?

+ Comment Now + Follow Comments

By Louis Goodman & Timothy Norbeck

For many years and in countless articles, physicians have been the scapegoat for rising healthcare costs in the U.S. In fact, they have been blamed by many critics for the U.S. leading the world in healthcare expenditures.



(Photo credit: Images_of_Money)



Fed Up With Obamacare,

A close examination of the data indicates that this blame is misplaced. Something else is revealed by digging deeper into the key components in healthcare spending: Technology, administrative expenses, hospital costs, lifestyle choice and chronic disease conditions have all had greater impacts on rising overall healthcare costs than physicians.



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Perspective

Medicine's Ethical Responsibility for Health Care Reform — The Top Five List

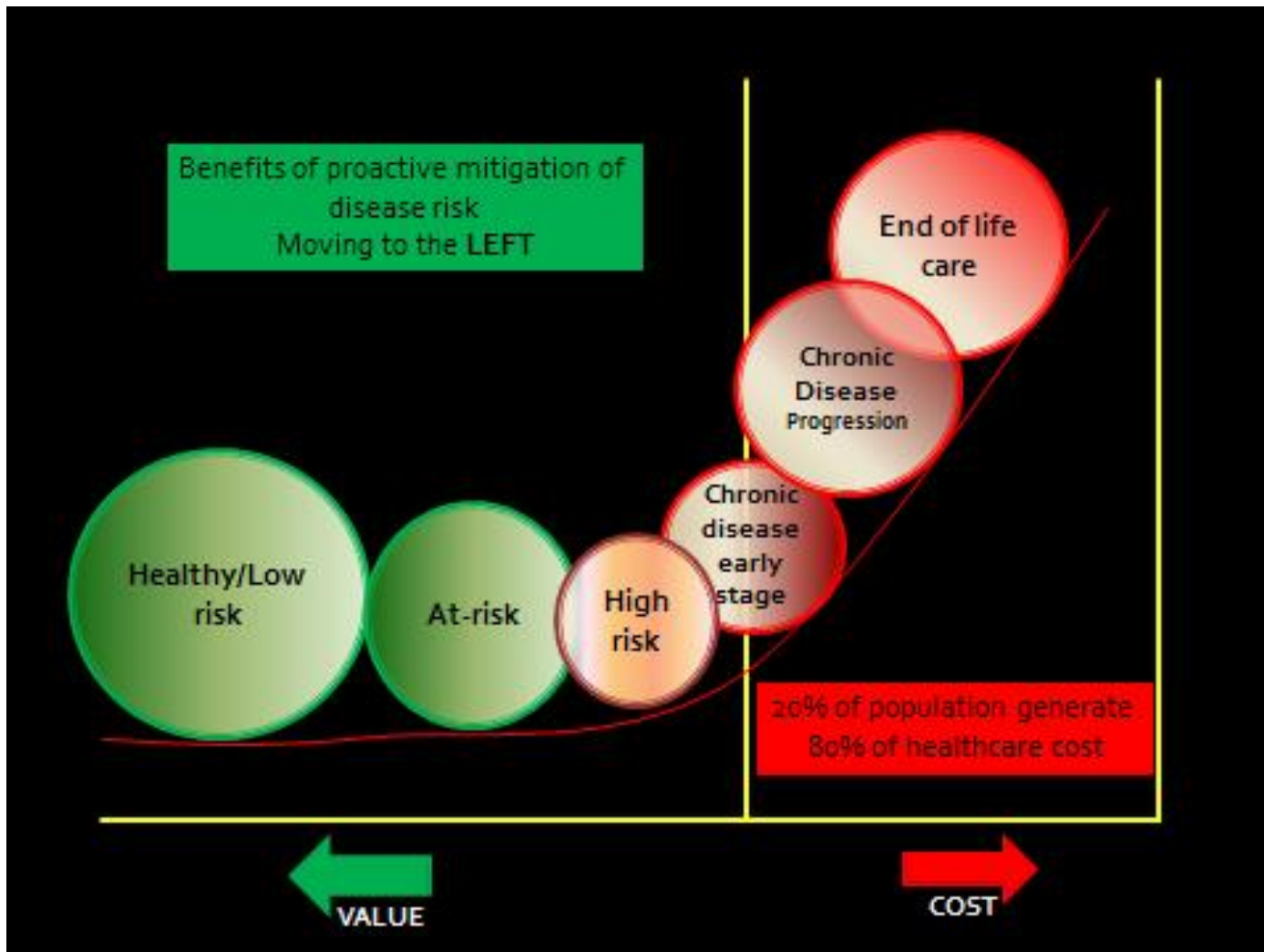
Howard Brody, M.D., Ph.D.

N Engl J Med 2010; 362:283-285 | [January 28, 2010](#) | DOI: 10.1056/NEJMp0911423

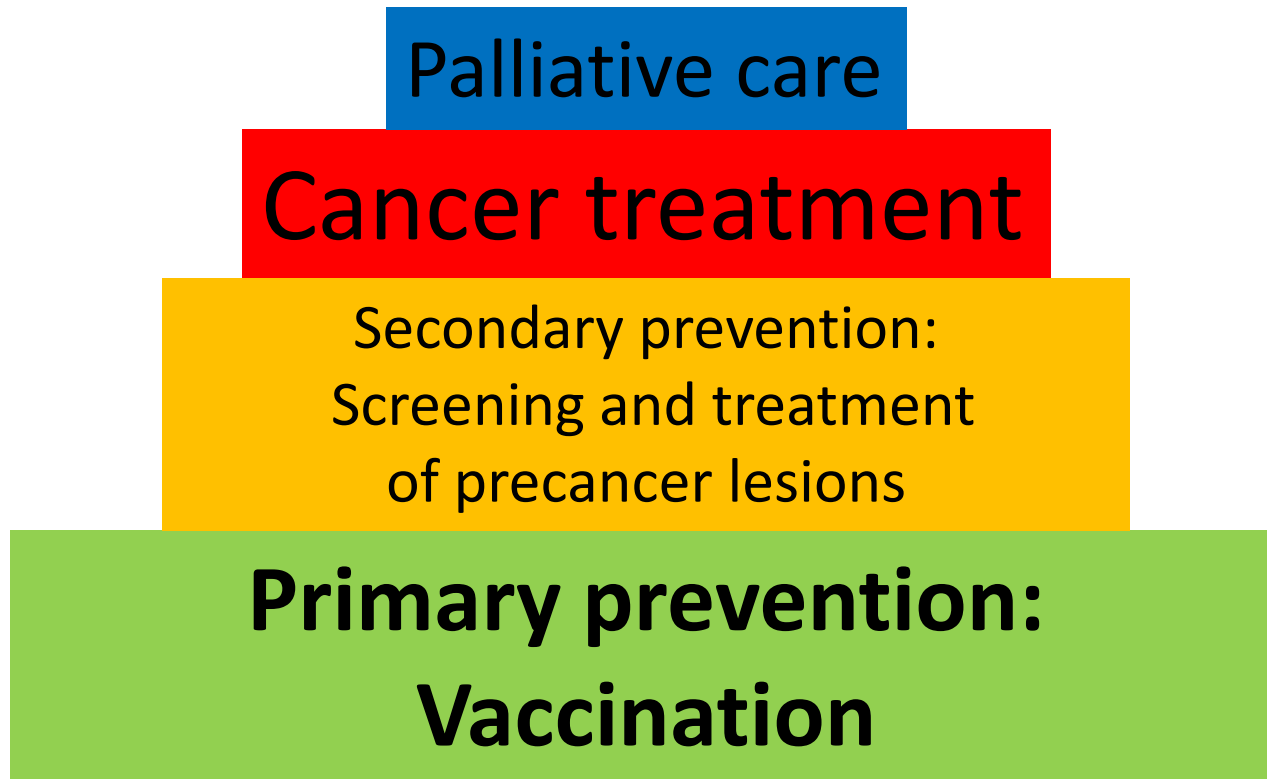
'If physicians seized the moral high ground, we just might astonish enough other people to change the entire reform debate for the better'

High costs of cancer care

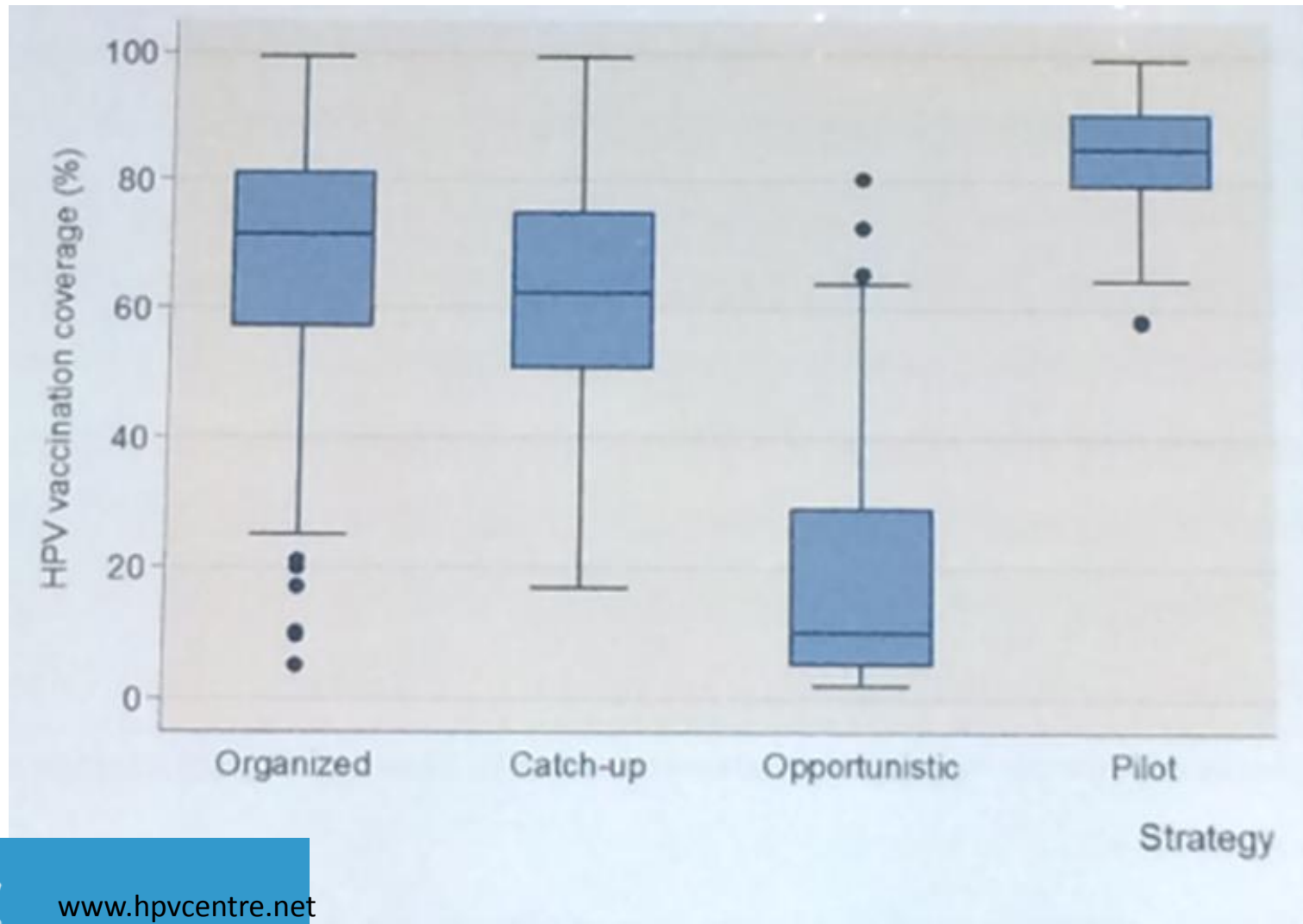
The biggest threat to healthcare



HPV Vaccination: The basis of cancer control



In 2014, 115 million women (3.4% of women globally) have received HPV vaccines



HPV vaccine introduction through national immunization programs (2008-2009)



10%



HPV vaccine introduction through national immunization programs (2010-2012)



17%

To

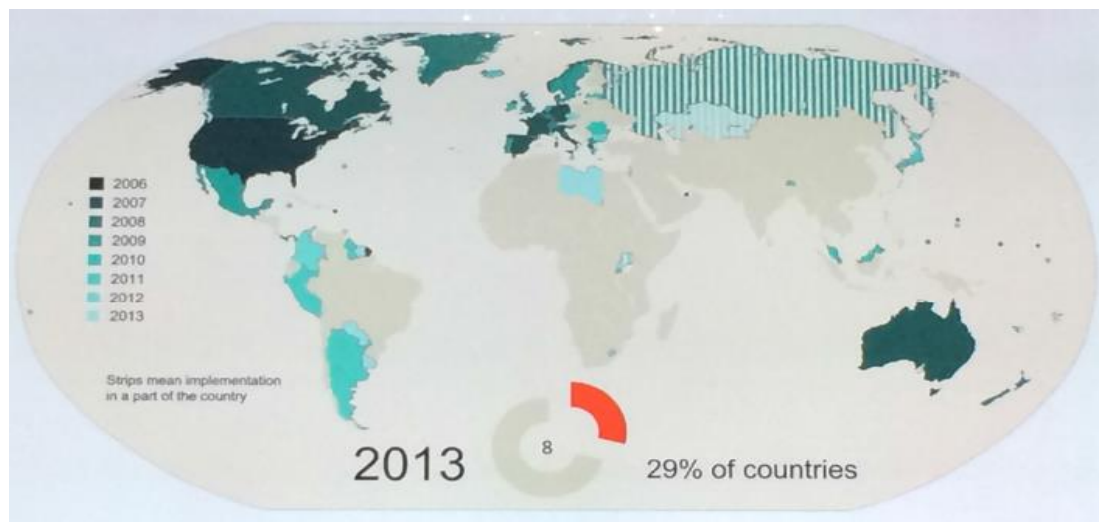
25%



HPV
information
centre

www.hpvcentre.net

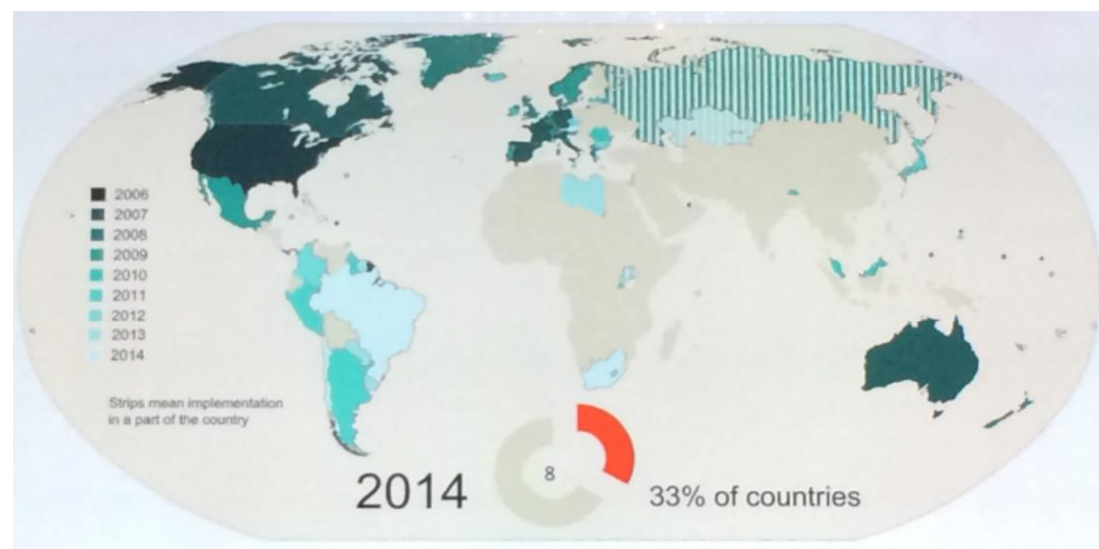
HPV vaccine introduction through national immunization programs (2013-2014)



29%

to

33%



HPV
information
centre

www.hpvcentre.net

Chile introduces the Human Papillomavirus Vaccine (HPV) in its National Immunization Programme

Fernando Muñoz, Ministry of Health, Chile; Marta Prieto and Andrea Vicari, PAHO/WHO

On 2 September 2014, Chile's President Dr Michelle Bachelet launched the vaccine against human papillomavirus (HPV). This year, the Ministry of Health plans to vaccinate 125,000 girls aged nine to 10 years. The quadrivalent vaccine is being administered in a two-dose immunization schedule with a 12-month interval between doses.

Health workers will administer the HPV vaccine at public and private schools. The vaccine introduction was jointly planned with the education sector, and a [manual](#) specifically directed at teachers was prepared and distributed. Additional [information](#) and [videos](#) are available online.

Every year, 587 women die in Chile of cervical cancer (equivalent to a 5.7 age-adjusted mortality rate per 100,000 women). The introduction of the HPV vaccine is the outcome of the joint work among the National Programme for the Control of Cervical Cancer, the National Immunization Programme, education and health experts, economists, political leaders and civil society representatives.

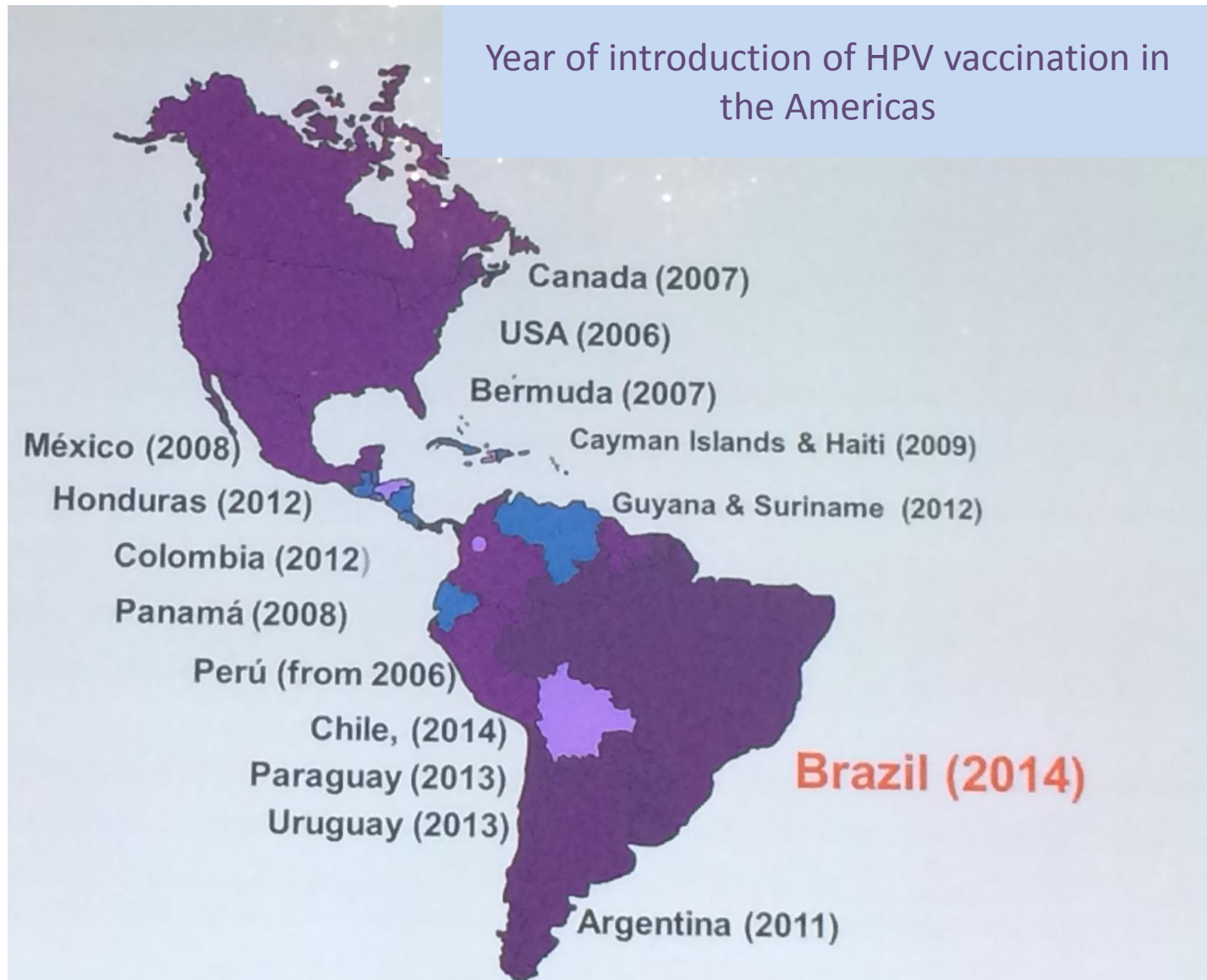
In Chile, the HPV vaccine has been available in the private health sector since 2006. The inclusion in the national immunization schedule thus achieves universal access to this vaccine throughout the target age cohorts, included for vulnerable population groups. The annual public investment for HPV immunization will amount to US\$ 2.5 million.

In the Americas, 22 countries (in addition to Chile) including Argentina, Antigua, Barbados, Brazil, Bermuda, Canada, the Cayman Islands, Colombia, Ecuador, Guyana, Mexico, Panama, Paraguay, Peru, Puerto Rico, Saba, Sint Maarten, Suriname, Trinidad and Tobago, the United States of America, and Uruguay—now offer the HPV vaccine in their publicly funded immunization programmes. Each year, 6.5 million adolescent girls (85% of a typical birth cohort of the Americas) have a guaranteed access to HPV vaccine in the Western Hemisphere.



Chile's President Michelle Bachelet (center) and Health Minister Dr Helia Molina (second from left) at the launch of national HPV vaccination. Credit: MoH, Chile.

8 out of 10 adolescent girls in Americas have access to HPV vaccination



The Australian experience



Australia HPV Immunization Program

29 Nov 2006: “The Commonwealth Government will fund the cervical cancer vaccine, GARDASIL[®], for girls and women aged 12 to 26 from 2007.”

April '07 - Dec '08
(catch-up)

July '07 - Dec '09
(catch up)

School Based Program

- Girls 13 - 18 years (catch-up)
- Girls 12 – 13 years (ongoing)

GP Based

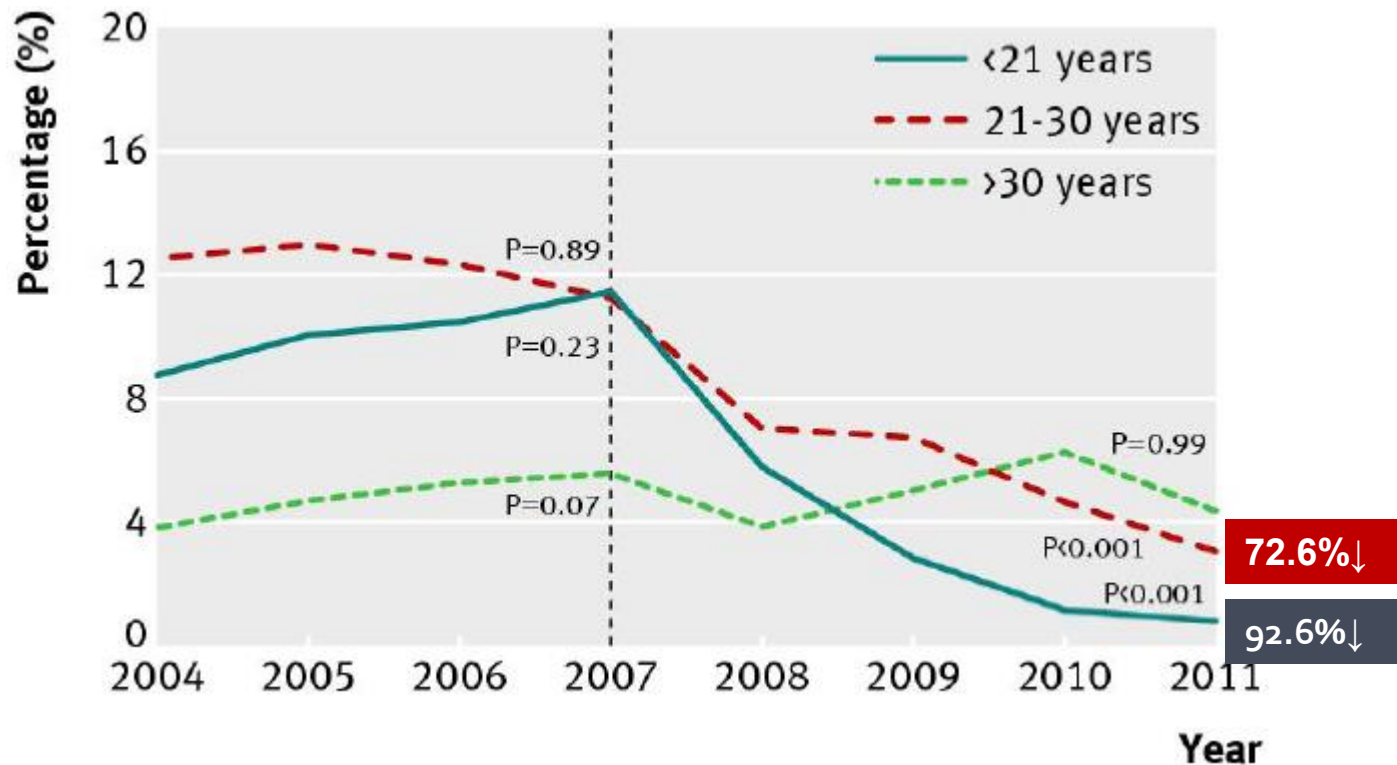
- Young women 18 - 26 years (catch-up)
- Girls 12 - 18 years who miss doses at school

July 2013- vaccination of adolescent boys was rolled out.

Monitoring HPV outcomes



Proportion of Australian born women diagnosed with genital warts at first visit



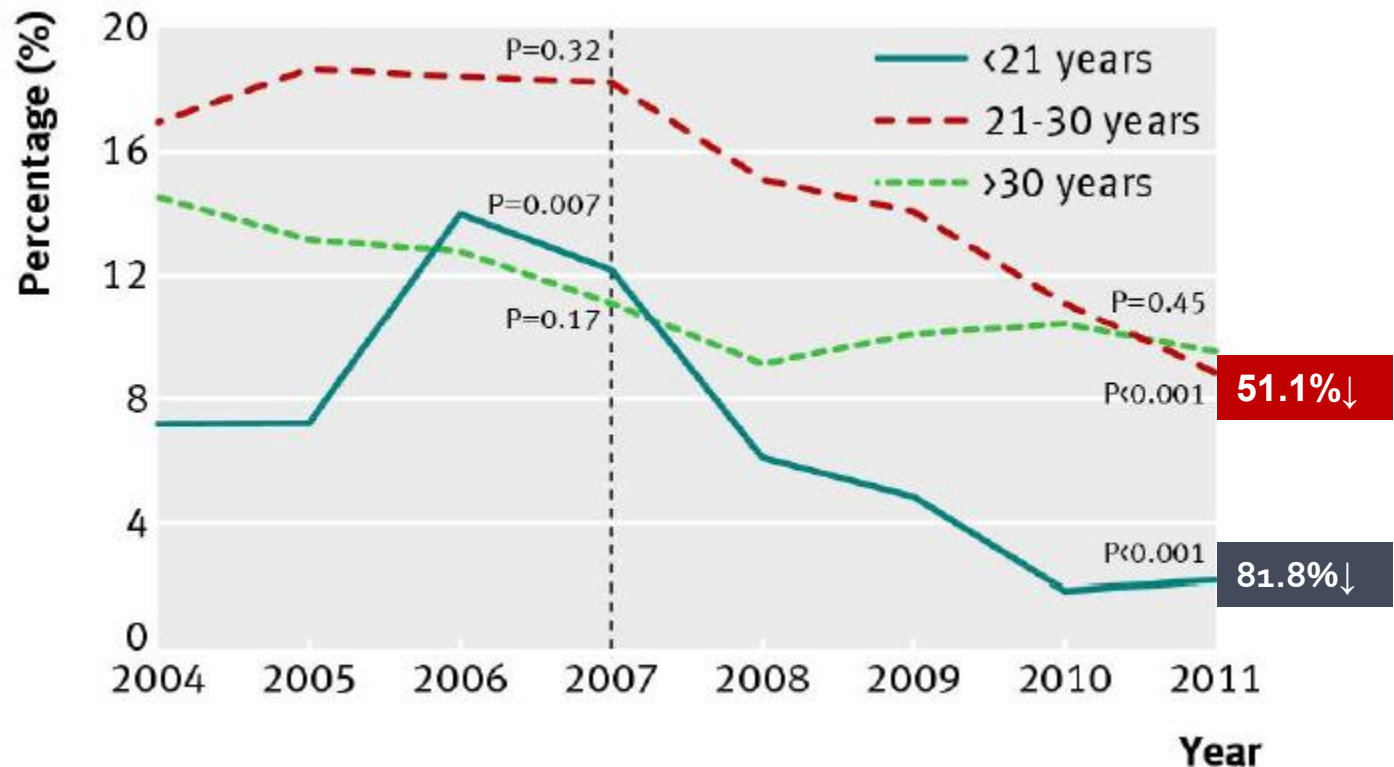
^aSignificant decline ($P_{trend} < 0.001$) in the proportion of women diagnosed with genital warts at sexual health services. Trends were assessed with Poisson and chi-square tests.

Figure courtesy of Ali H et al. Presented at: International Union Against STI World Congress; October 2012; Melbourne, Australia.

1. Ali H et al. Presented at: International Union Against STI World Congress; October 2012; Melbourne, Australia.

2. **BMJ 2013; 346:f2032**

Proportion of heterosexual men diagnosed with genital warts at first visit



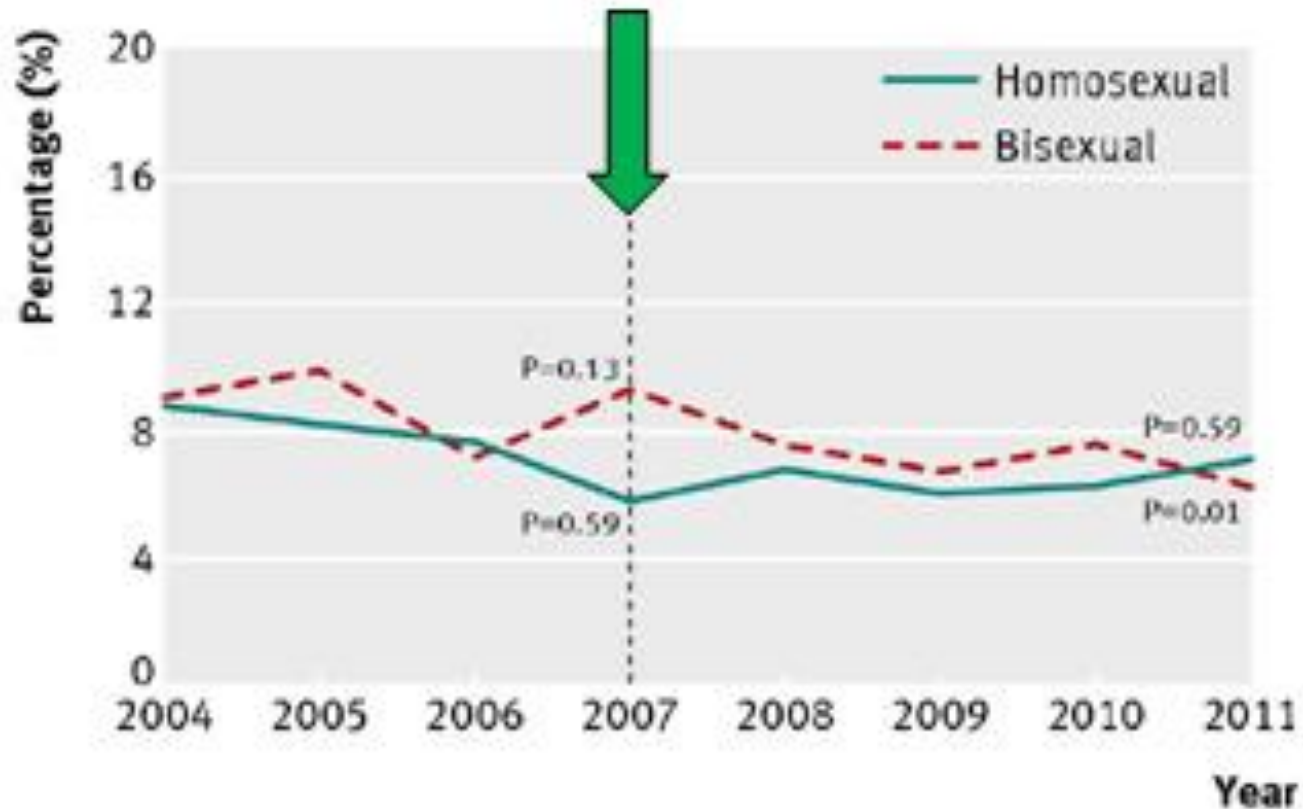
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1. Ali H et al. Presented at: International Union Against STI World Congress; October 2012; Melbourne, Australia.

2. **BMJ 2013; 346:f2032**

Proportion of homosexual and bisexual men diagnosed with genital warts at first visit



Countries Reporting Effectiveness Data for qHPV Vaccine as of March 2013

	 Australia	 New Zealand	 Denmark	 Sweden	 United States	 Germany	 Belgium	 Canada
Program Started	2007 ¹	2008 ³	2008–2009 ⁴	2006–2007 ⁵	2006 ⁶	2007 ¹⁰	2006 ¹¹	2007–2009 ¹³
Type of Program	School- and clinic-based ¹	School- and clinic-based ³	Clinic-based ⁴	Clinic-based ^{5,d}	Clinic-based ⁷	Clinic-based ¹⁰	School- and clinic-based ¹¹	School- and clinic-based ^{13,14,c}
Routine^a Cohort (Age, Years)	M & F: 12–13 ²	11–12 (school-based only) ³	12 ⁴	13–17 ^{5,e}	M & F: 11–12 ⁶	12–17 ¹⁰	10–13 ¹¹	F: 9–13 ^{13,c} M: 9–26 ^{13,h}
Catch-Up Cohort (Age, Years)	M: 14–15 through 2014 ² (F: 14–18 ended in 2008) ¹	13–20 (school- and clinic-based through 2010) ³	13–17 (2008–2010) ⁴	NA	M: 13–21 ^{6,f} F: 13–26 ⁸	NA	NA	F: 14–26 ^{13,c,i}
Vaccination Rates^b (%)	F: 64–80 (age 15, 2009) ^{1,c} F: 66–72 (ages 14–17, 2007–2009) ¹	73 (1st dose, ages 11–18, 2009) ³	76–82 (ages 14–16, 2012) ⁴ 78–83 (ages 17–19, 2012) ⁴	18 (ages 13–17, 2006–2010) ⁵ 27 (ages 18–19, 2006–2010) ⁵	F: 32 (ages 13–17, 2010) ^{9,c}	NA	79 (ages 12–14, 2011–2012 school year) ^{12,g}	F: 51–59 ^{15,j} (ages ~13–14)
Male Vaccination	Universal: 2013 ²	None	None	None	Permissive: 2009; Universal: 2011 ⁷	None	None	Universal: 2012 ^{13,k}

^a100% covered by national health programs except Belgium¹⁶ and the United States.¹⁷ ^bFull 3-dose completion, except for New Zealand. ^cVaries by region/province.

^dOpportunistic vaccination for females 13–17 years old began in October 2006 and has been partially subsidized since May 2007⁵; however starting in 2010 vaccination programs are school-based.¹⁶ ^eStarting in 2010, Swedish vaccination schedule now target females 10–12 years old.¹⁶ ^fMales 22–26 years old may be vaccinated.

^gEstimated overall coverage rate in Flanders for females born between 1998 and 2000. ^hNo catch-up population but recommendation for MSM ≥9 years of age. ⁱFemales 27–45 years old may also be vaccinated. ^jRange of coverage in Ontario, Canada for school years 2007–2008, 2008–2009, and 2009–2010; routine only, school-based only. ^kFunding for male vaccination to be determined at the provincial level.

MSM=men having sex with men; NA=no information available; qHPV=quadrivalent human papillomavirus.

Please see corresponding speaker note for references.



World Health
Organization

Organisation mondiale de la Santé

Weekly epidemiological record
Relevé épidémiologique hebdomadaire

24 OCTOBER 2014, 89th YEAR / 24 OCTOBRE 2014, 89^e ANNÉE
No. 43, 2014, 89, 465-492
<http://www.who.int/wer>

Human Papillomavirus vaccines: WHO position paper 2014 ¹

- Reviewed and endorse by WHO Strategic Advisory Group of Experts(SAGE)²
- Comprehensive document for public health officials and immunization officials
- WHO position: cervical cancer and other HPV related diseases are global public health problems and **reiterates** its recommendations that HPV vaccines **should be included** in a national immunization programme

1. <http://www.who.int/wer/2014/wer8943/en/>,

2. http://www.who.int/immunization/position_papers/position_paper_process.pdf

Human Papillomavirus vaccines: WHO position paper 2014 ¹

Strategy for implementation

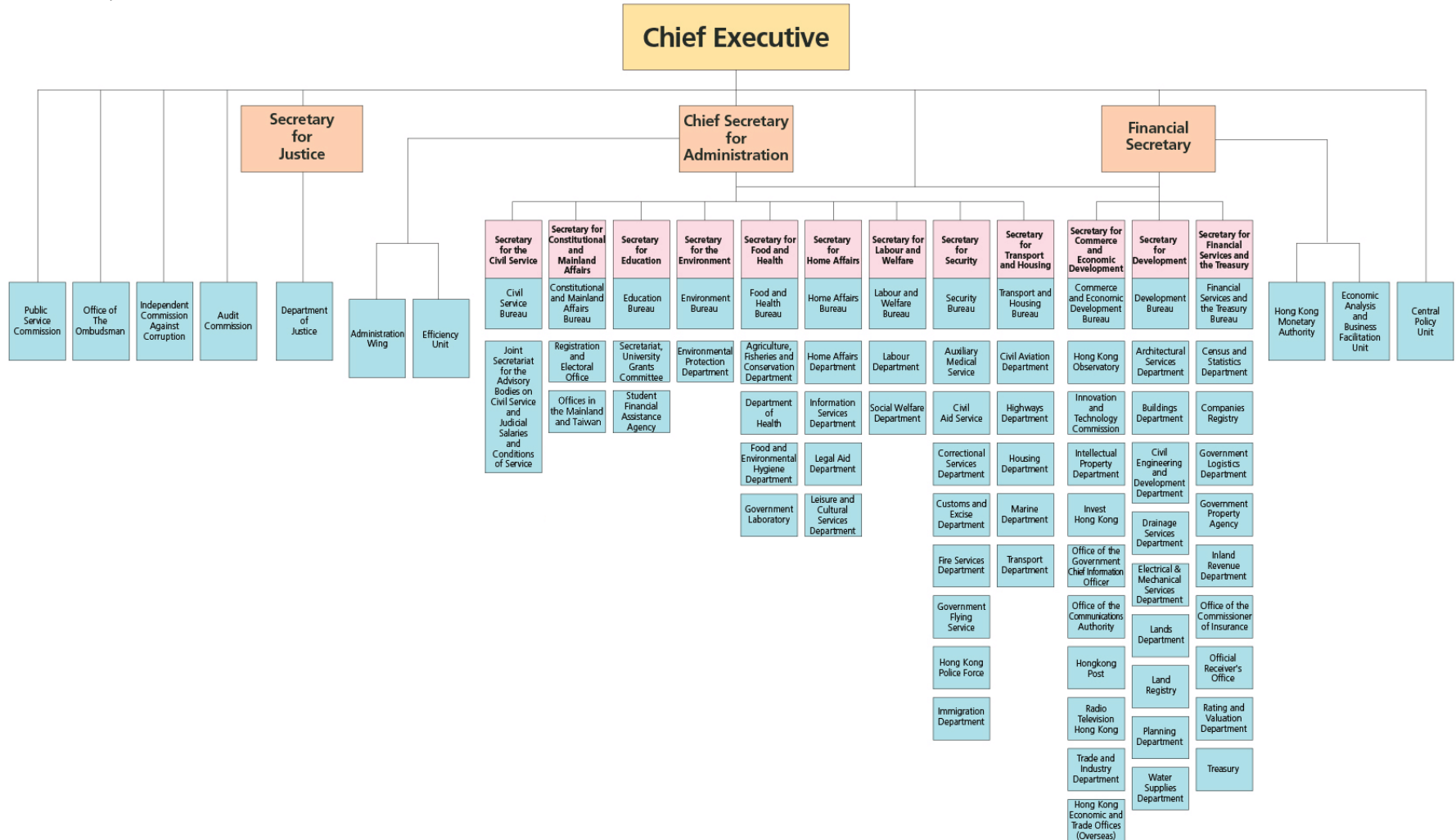
- ☑ Introduction should be coordinated and comprehensive
- ☑ Education
- ☑ Increased access to quality screening
- ☑ Should not divert funds from screening
- ☑ Compatible with their delivery infrastructure
- ☑ Cost effective and sustainable
- ☑ Achieve highest possible coverage

Hong Kong governing structure



ORGANISATION CHART OF
THE GOVERNMENT OF THE HONG KONG
SPECIAL ADMINISTRATIVE REGION

(1 July 2012)



MALAYSIAN POLICY ON HPV IMMUNISATION

- **Mother Policy**

- Free HPV immunization to 13 years old Malaysian girls starting 2010

- **Operational Policy**

- Voluntary HPV immunization Program : require written parental consent
- School based immunization for all Form 1 (Year 7) students irrespective of actual age
- Clinic based immunization for out of school 13 years old girl

SETTING UP MALAYSIAN NATIONAL HPV IMMUNISATION PROGRAM

STEPS INVOLVES

TIME FRAME

1. POLICY AND FUNDING APPROVAL

2006 -2009

2. PREPARATORY PHASE

DEC 2009 – JULY 2010

3. IMPLEMENTATION

16TH AUGUST Onwards

4. MONITORING AND EVALUATION

Dec 2010 Onwards

PREPARATORY PHASE

CHALLENGES

ACTION TAKEN

1	<p>Vaccine Procurement</p> <ul style="list-style-type: none">• Expensive vaccine• 'Halal certification' : concern of many Muslim parents• Vaccine storage and Cold chain maintenance• Timely vaccine delivery	<ul style="list-style-type: none">- 4 levels of vaccine procurement committees- Open bidding process- 'Halal certification' stated as requirement in tender specification document- Discussion with Malaysian Islamic Authority : Islamic ruling on HPV vaccination http://www.e-fatwa.gov.my/fatwa-kebangsaan/hukum-pengambilan-vaksin-human-papilloma-virus-hpv- Packaging vaccine with WHO certified vaccine fridges to be delivered to pre identified health clinics throughout country- vaccine procurement contract renew every 2 years- Tracking vaccine delivery (<i>e-cloud</i>)
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PREPARATORY PHASE (2)

CHALLENGES

ACTION TAKEN

2. Grounding the stake holders
- School children and parents
 - Ministry of Education (MOE)
 - GO and NGOs
 - MOH personals

- Involved MOE in planning and implementation stage
 - MOE official circular to all schools on HPV vaccination
- Meetings and dialogs with various stake holders
- Involved PTAs on board as MOH partners
- Health education materials circulations to schools
- Awareness campaigns and training at national and states
- 'Rumor surveillance'

IMPLEMENTATION PHASE

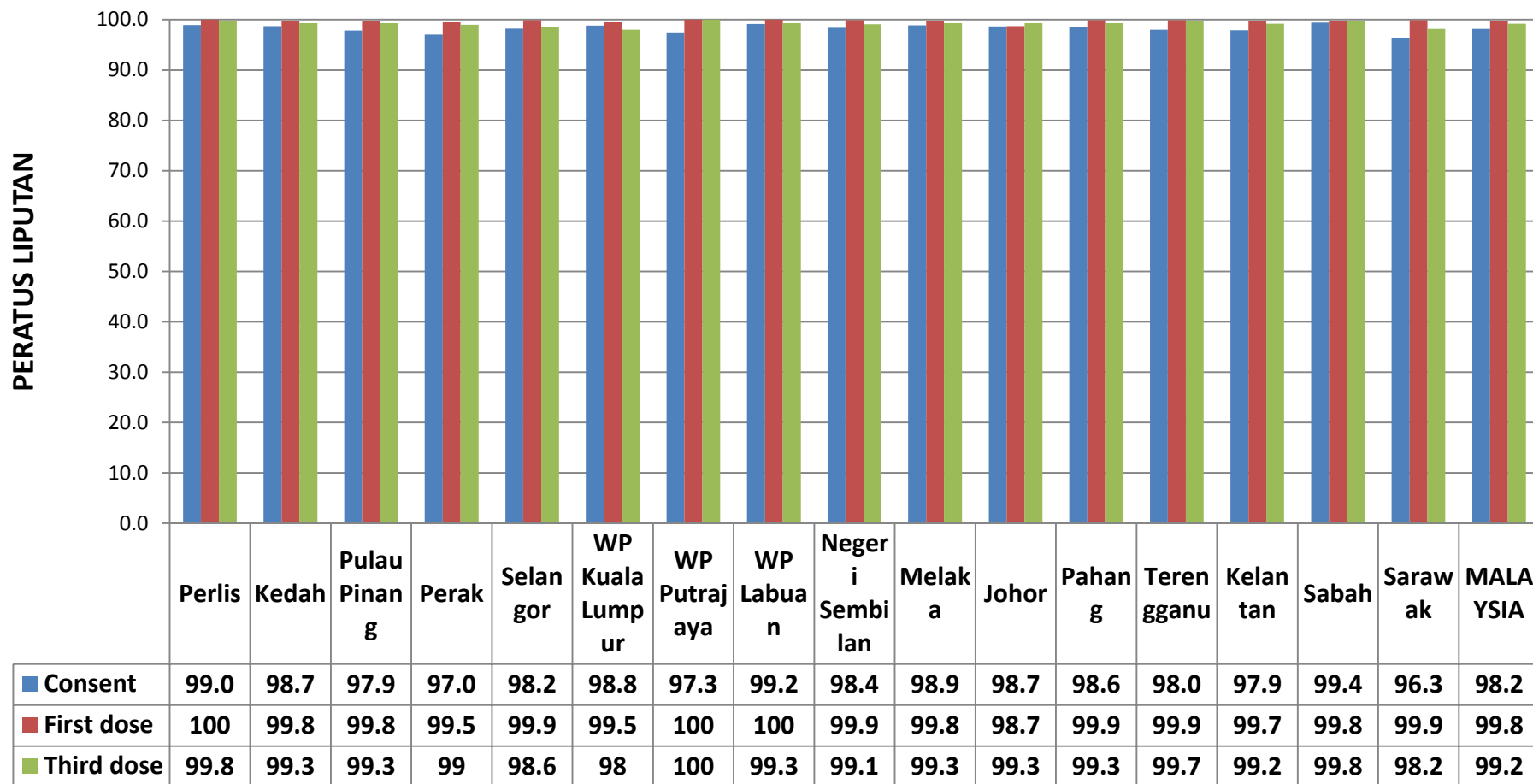
CHALLENGES

ACTION TAKEN

<p>3. 2010 Executing dose 1 and dose 2 within 4 to 8 weeks before school end 2010</p> <p>2011 Vaccinate 2 cohorts of students in 2011 (7 states)</p>	<ul style="list-style-type: none">- Working committees at various levels- Standardized guidelines, work process , consent forms, returns- Training of staffs on protocols- Mobilization of clinic staffs to support existing School Health Teams- Setting up target dates- Alternative Implementation Plan for 2010 and 2011
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HPV VACCINATION ACHIEVEMENT

Written consent, first and third dose coverage of the HPV vaccine for 13 year old females in year 2013



LESSON LEARNT

COMMITMENT AND SUPPORT

1. Strong political will and leadership drive
2. Partnership with MOE
3. Involvement of stake holders during planning stage
4. Managing potential risk
5. Program monitoring at all levels

EXISTING ORGANISATION AND PROGRAM

1. MOH organization structure
2. Availability of School Health teams
3. Mobilization of health staffs from health clinics
4. Childhood and School Health Immunization program accepted by parents in Malaysia

Partnerships in successful HPV vaccination



MAKNA

— **Majlis Kanser Nasional** —
National Cancer Council



Obstetrical & Gynaecological
Society of Malaysia



**Jo's cervical
cancer trust**

Information / Support / Friends

Tamika & Friends, Inc.
Together Fighting Cervical Cancer

G A V I

**THE GLOBAL ALLIANCE FOR
VACCINES & IMMUNIZATION**



**Cervical Cancer
ACTION**

A Global Coalition to STOP Cervical Cancer



Preparing the ground

Communication package

- Journalists briefing/press release
- Medical societies and NGOs
- Social media
- Television
- Radio
- Information is consistent

Deadly vaccines and teenage girls

Athi Shankar | April 30, 2014



CAP calls for the scrapping of a costly and 'irrelevant' programme aimed at protecting youngsters from a sexually... [More »](#)

Govt defends vaccines for teen girls

FMT Staff | May 4, 2014



The Health Ministry rejects CAP's criticism, saying the HPV vaccination programme is safe and effective. [More »](#)

Deadly vaccines and teenage girls

Athi Shankar | April 30, 2014

CAP calls for the scrapping of a costly and 'irrelevant' programme aimed at protecting youngsters from a sexually transmitted infection.



GEORGE TOWN: The Consumers' Association of Penang (CAP) has urged the Health Ministry to scrap the human papillomavirus (HPV) vaccination programme for 13-year-old girls, saying the funds would be better used for cervical cancer screening.

CAP president SM Mohamed Idris said today that medical studies had shown HPV vaccines to have deadly side effects.

According to the US Centre for Disease Control and Prevention, HPV is the most common sexually

transmitted infection and goes away on its own in most cases.

Speaking at a press conference today, Idris called on the government to re-channel HPV vaccination funds towards improving its cervical cancer screening (CCS) programme.

He said the CCS programme should include pap smear tests for all women, particularly those who were pregnant, getting married or above the age of 17.

Govt defends vaccines for teen girls

FMT Staff | May 4, 2014

The Health Ministry rejects CAP's criticism, saying the HPV vaccination programme is safe and effective.



KUALA LUMPUR: The Health Ministry today defended its human papillomavirus (HPV) vaccination programme against criticism by the Consumers' Association of Penang (CAP).

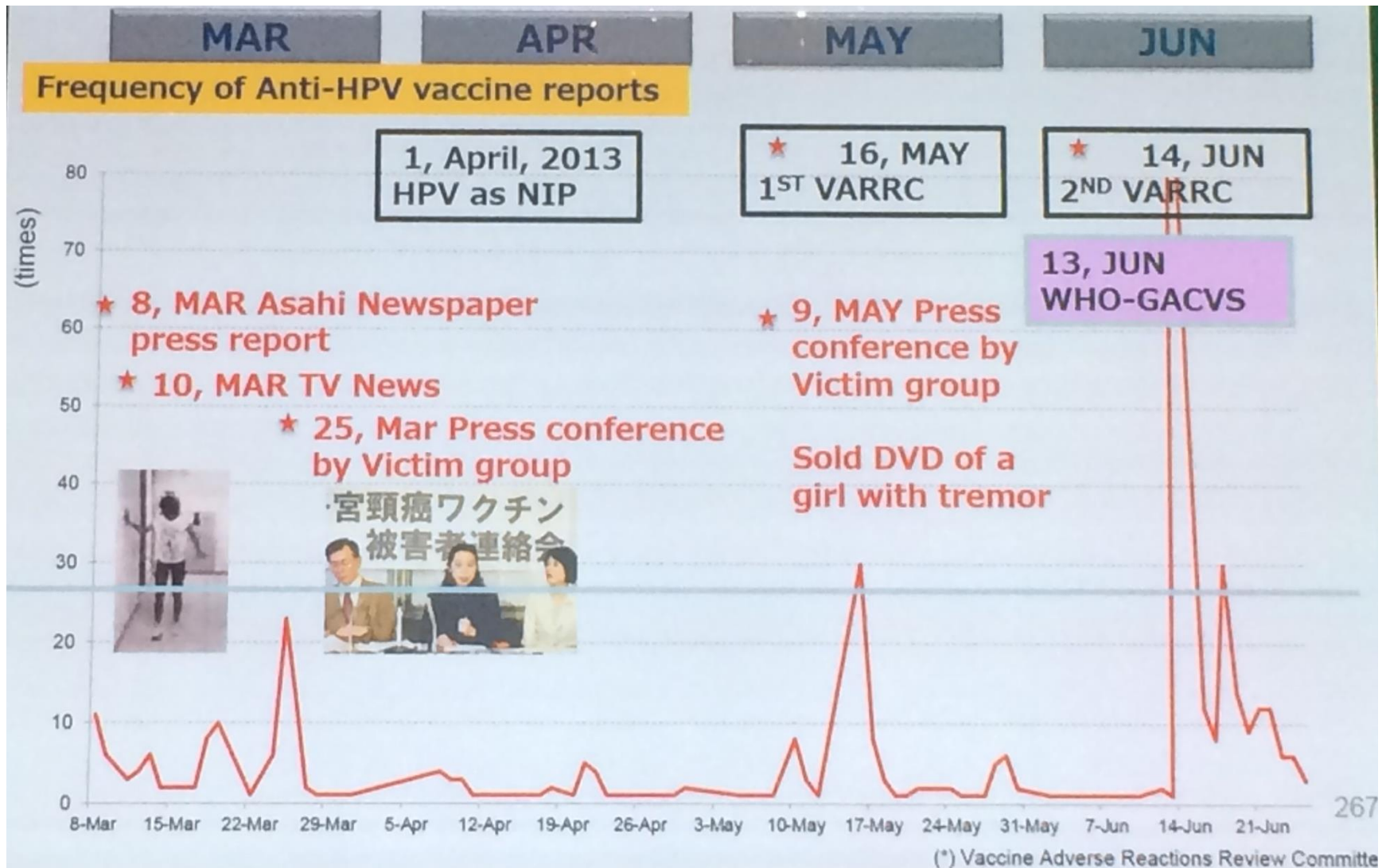
A ministry spokesman said in a media release that the vaccine worked effectively when administered on virgins.

Last week, CAP President SM Mohamed Idris urged the government to stop the programme, saying the vaccines used could have deadly side effects.

According to the US Centre for Disease Control and Prevention, HPV is the most common sexually transmitted infection and goes away on its own in most cases.

Idris said the programme was "irrelevant" because 13-year-old girls—the target group—were rarely promiscuous. He suggested that funds for the programme be used instead to boost the ministry's cervical cancer screening programme.

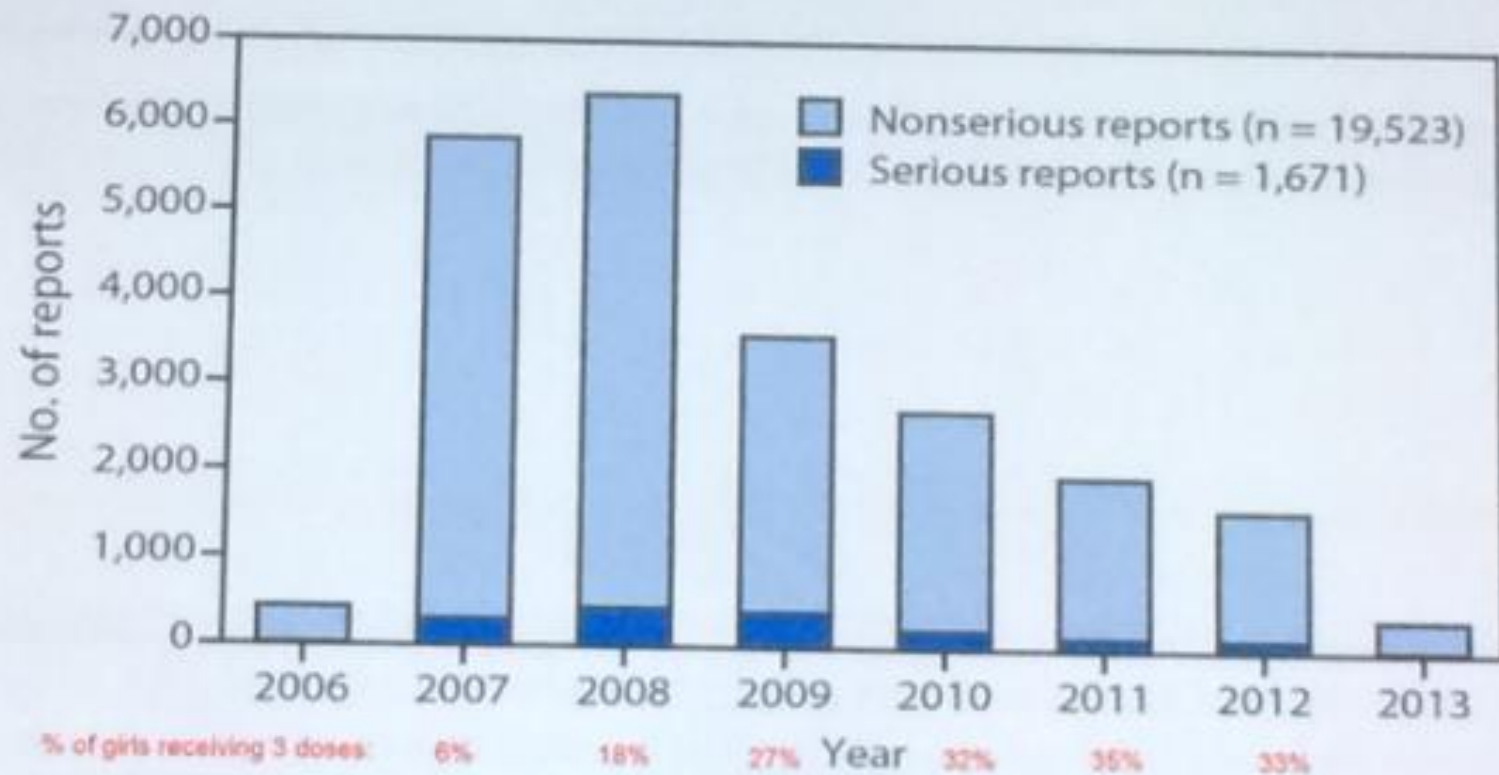
The impact of negative media reports on adverse events



Monitoring of adverse events

Number of serious and non-serious reports of adverse events after administration of quadrivalent HPV vaccine in females, by year.

Vaccine Adverse Event Reporting System, United States, June 2006–March 2013*. MMWR 2013



Consensus among Global Health Authorities (FDA, CDC, WHO, EMA, ECDC)

- To date, no safety concerns for the use of HPV vaccines have arisen from ongoing surveillance studies
- Post-licensure adverse events in males were similar to those observed in females and or those found in males in pre-licensure trials
- Recommend continued monitoring for the safety of qHPV vaccine in both genders

Cervical screening works

Table 1. Five decades of cervical cancer screening: observed and projected (in a scenario without screening) number of incident cases and ASRs of cervical cancer, age 30–74

		Cumulative number of incident cases, 1961–2010						ASR (per 100 000)			
		Observed		Projected ^{a,b}		Prevented by screening		Observed			Projected ^a
					Cumulative		Average per year, 2006–2010	1961–1965	1986–1990	2006–2010	2006–2010
Country	Screening activities ^c	N	N	95% CI	N	% ^d	N				
Denmark	1967, regional; 1996, national	25 704	53 210	48 038–58 806	27 506	51.7	1239	70.9	32.4	19.2	102.0
Finland	1963, national; 1971, completed	9410	15 133	12 814–18 136	5723	37.8	202	33.0	7.1	7.5	21.8
Norway	1970s, opportunistic; 1995, national	15 146	24 603	21 555–28 393	9457	38.4	552	35.2	25.3	19.0	62.8
Sweden	1967–1973, national	24 556	42 777	38 018–48 312	18 221	42.6	647	39.7	16.2	13.6	40.0
Total	-	74 816	135 723	127 463–145 715	60 907	44.9	2640	-	-	-	-

Abbreviations: ASR= age-standardised incidence rate (world standard population); CI= confidence interval.

^aAssuming that the absence of screening activities would imply constant period effects.

^bModel-based confidence intervals for projections were obtained by simulation.

^cYear of onset and type of screening activity.

^dPercentage computed = (prevented cases × 100)/projected cases.

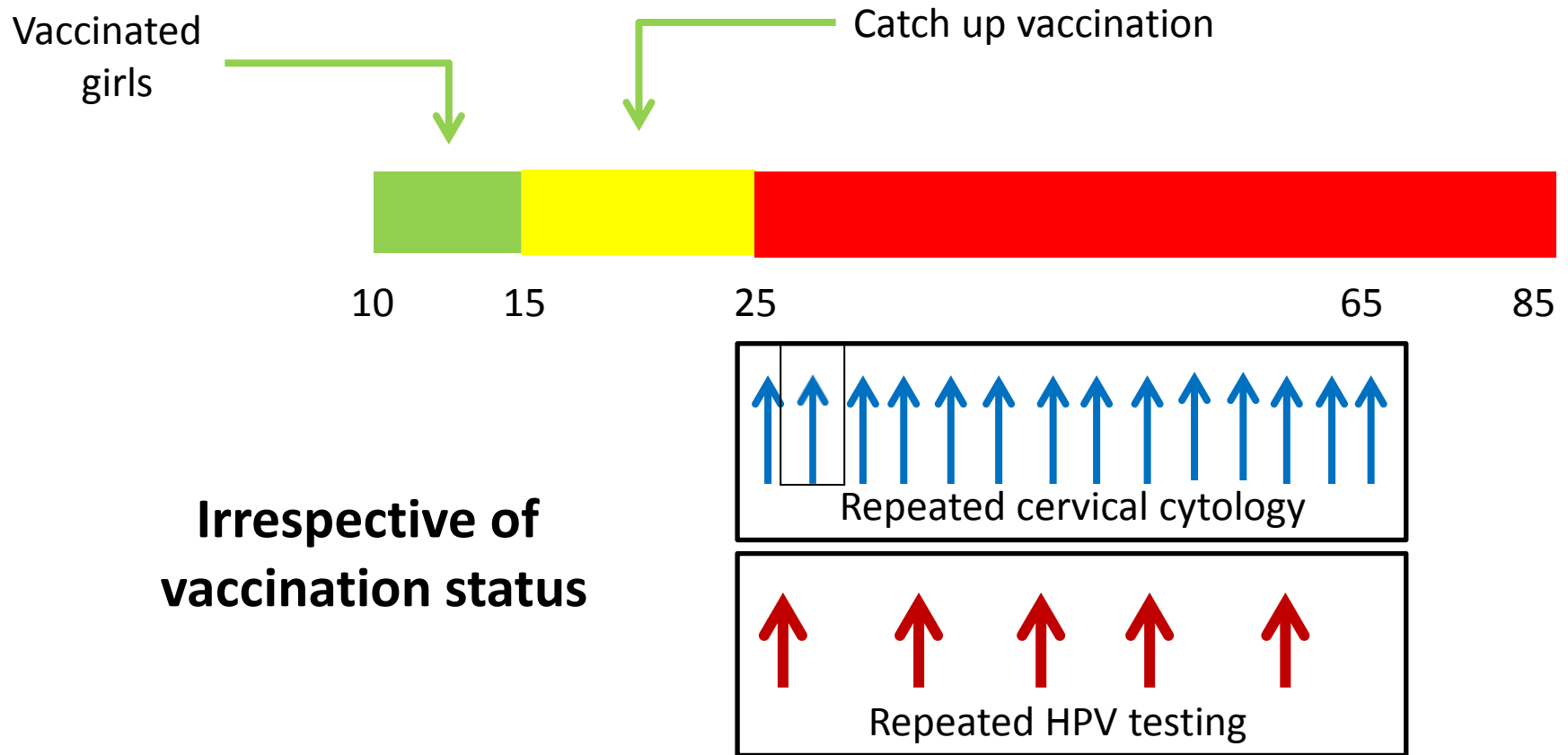
Why is HPV DNA testing an attractive option?

- More sensitive and reproducible than pap test
 - While sensitivity of cytology is variable in different countries, HPV testing is similar
- Can be automated, centralized and be quality checked for large specimen output
- Protection in HPV DNA negative women is high
- More applicable to vaccinated population

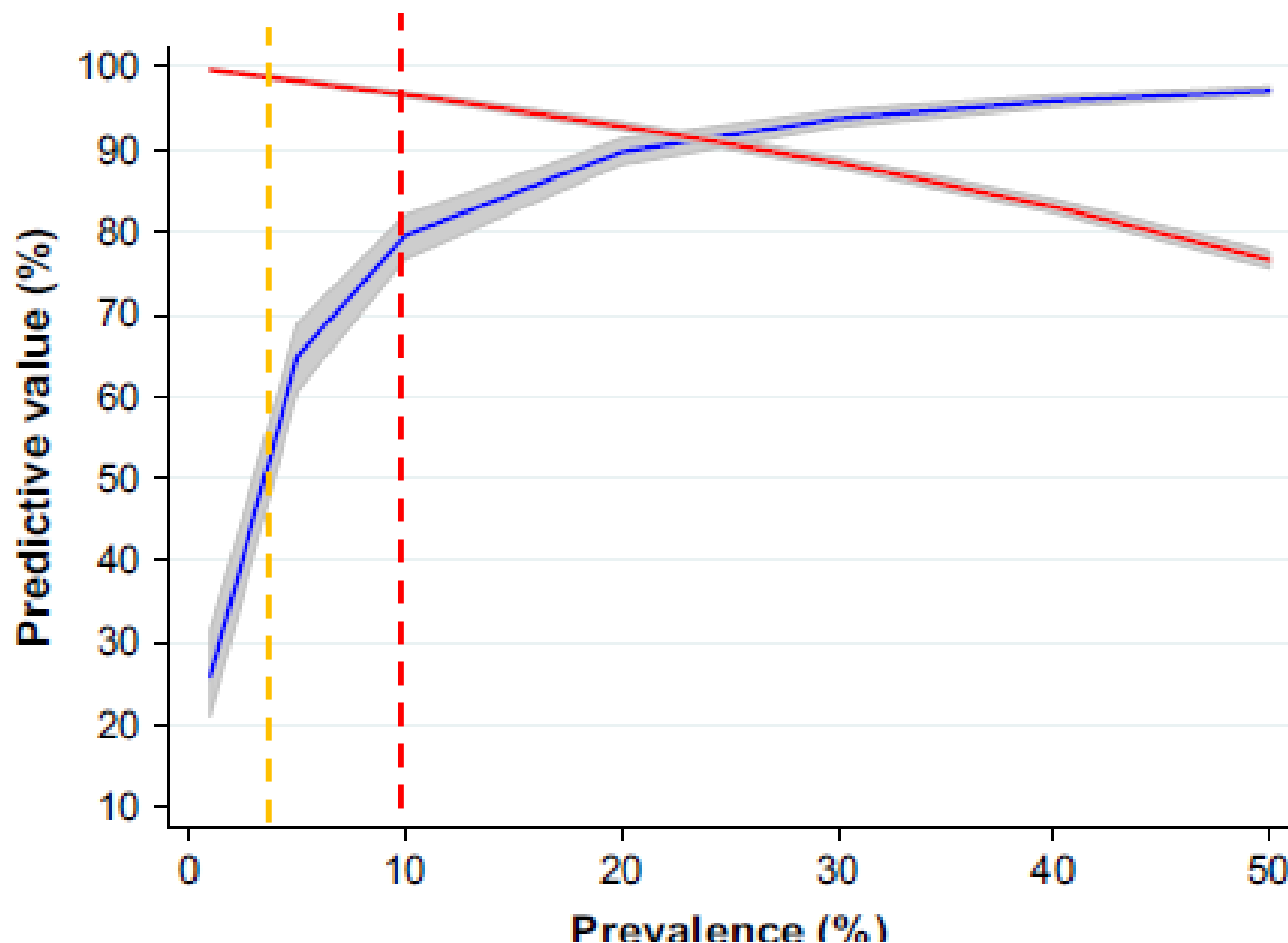
Screening in the era of HPV vaccination

- Should screening continue as it is?
- Intensity and modality
- Cost effectiveness of cytology is dependent on performance accuracy
 - Reduction in prevalence of cervical abnormalities
 - Decrease in PPV
 - Increase in false positives
 - Impact on cyto technician training and skills

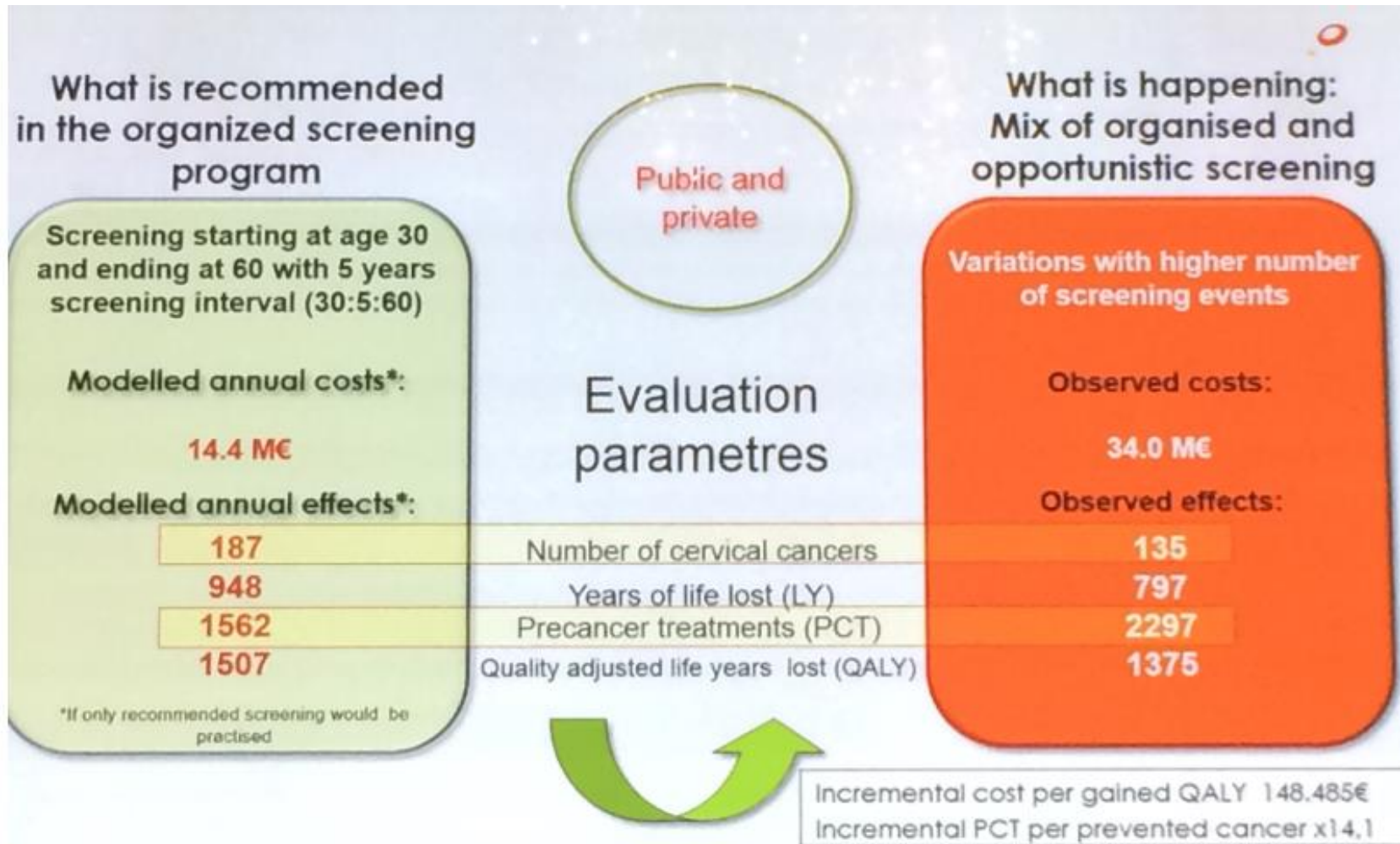
Current screening strategy



Influence of variation of HPV prevalence on PPV and NPV of cytology as primary screening



Inappropriate screening is costly



| Recommended option and theoretical results obtained from models

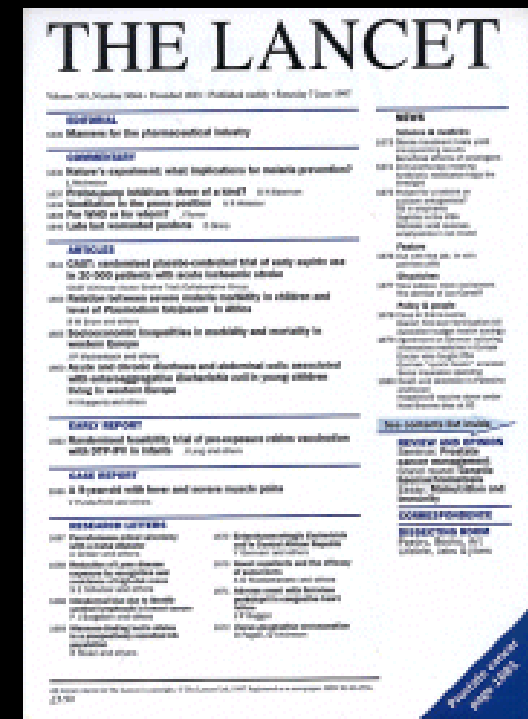
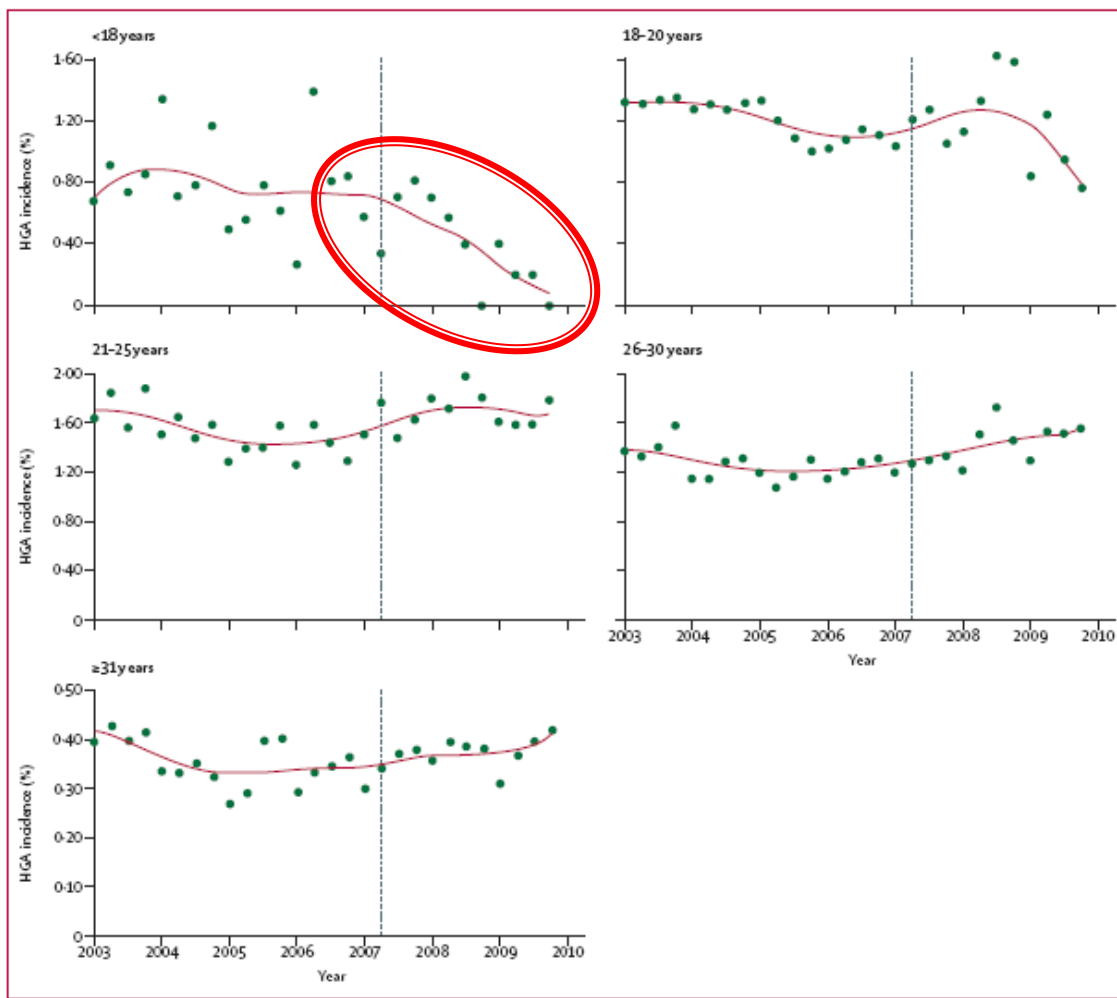
| Non cost-effective option as observed in real life practice



- Reassess the evidence for screening tests and pathways for vaccinated and unvaccinated
- Determined a cost-effective screening pathway and program model
- Assessed the feasibility and acceptability of the renewed program for women

Early effect of the HPV vaccination programme on cervical abnormalities in Victoria, Australia: an ecological study

Julia M L Brotherton, Masha Fridman, Cathryn L May, Genevieve Chappell, A Marion Saville, Dorota M Gertig





Australian Government
Department of Health

New screening recommendations

- HPV test should be undertaken every 5 years;
- commence at 25 years of age;
- women should have an exit test between 70 and 74 years of age; and
- women with symptoms (including pain or bleeding) can have a cervical test at any age.

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Australia****Join our network** **Go**[Home](#) > [News](#) > [Media releases](#) > Recommended changes to cervical screening good news for Australian women**APR
28**

Recommended changes to cervical screening good news for Australian women



Cancer Council has welcomed recommended changes to Australia's cervical screening program announced today by Australia's Medical Services Advisory Committee.

Cancer Council Australia CEO, Professor Ian Olver, said evidence showed a new HPV (human papillomavirus) test every five years, which is recommended to become the primary cervical screening tool, would be more effective than the Pap test and just as safe.

Professor Olver emphasised that the changes announced were recommendations only and that women should continue to have Pap tests every two years for now. Pending decisions by government, it is likely the changes would not be implemented before 2016.

"The Pap test based screening program has been a great public health

Media contact:

For interviews please contact:
Hollie Jenkins 02 8063 4153 or
0400 762 010 or
hollie.jenkins@cancer.org.au

Why add males to current female vaccination?

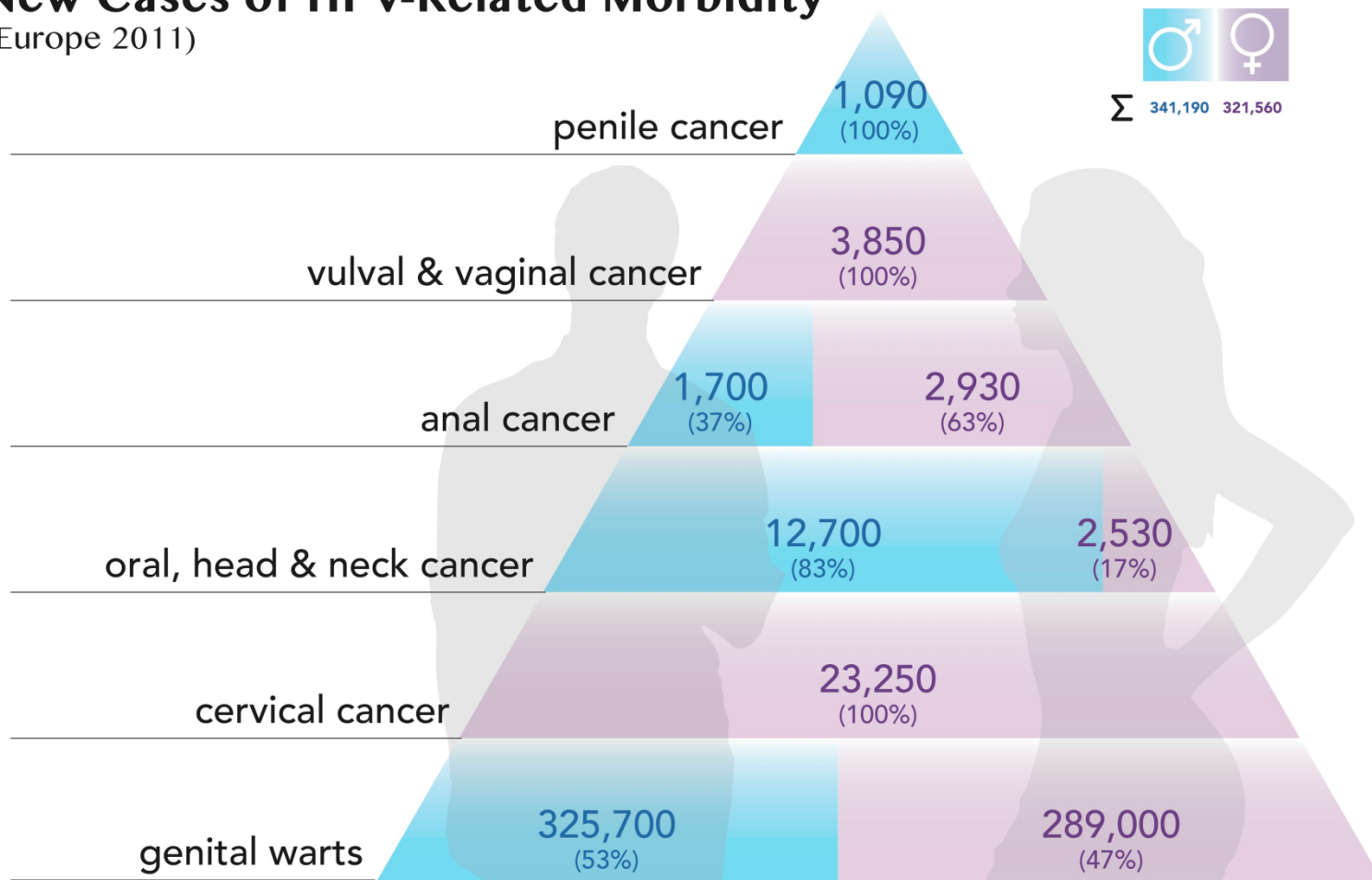
- HPV infection occurs in both genders
- Herd protection requires more than 80% uptake
- HPV related diseases are increasing in both genders
- Equity
- Positive cost-benefit analysis

HPV vaccination in males

- Unlike cervical cancer, no screening methods to prevent other HPV related cancers
- In economically developed western countries where screening is effective, HPV related diseases in men approximate that of women
- Vaccinating males have dual purpose
 - Herd immunity
 - Protecting males

HPV is not a 'female' problem

New Cases of HPV-Related Morbidity (Europe 2011)



ADAPTED FROM
Stanley, M. *Nature* 488; S10 (30 Aug 2012)

Prevalence of HPV of HPV in men - 49.4%

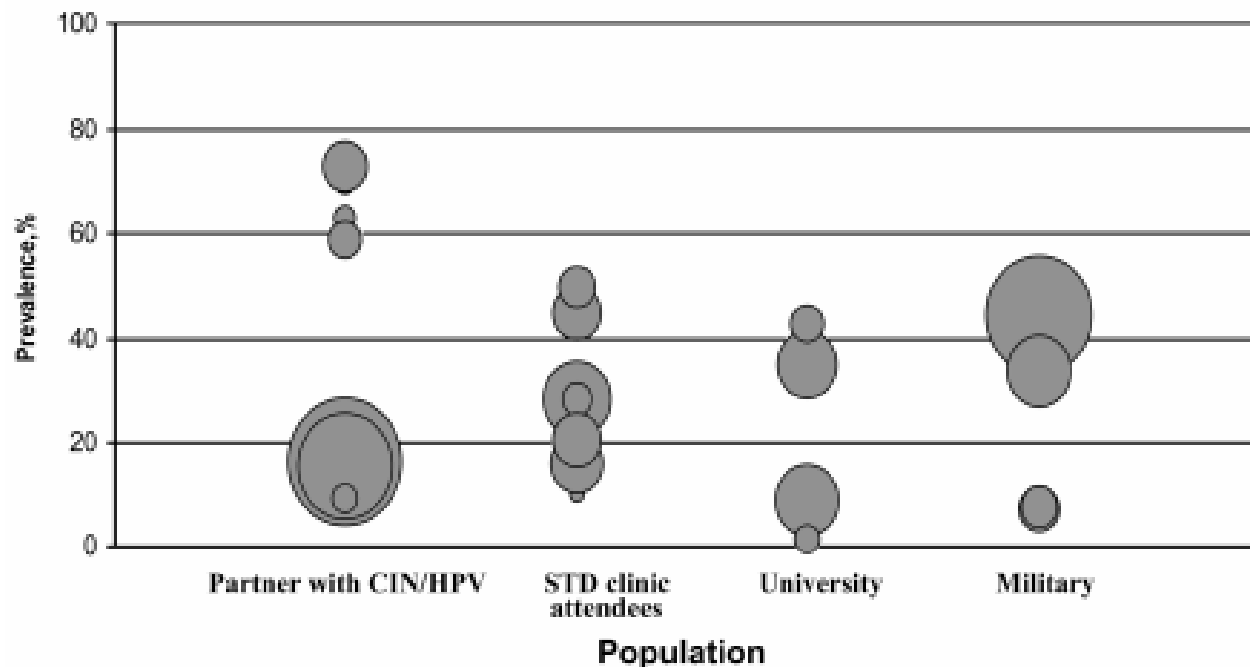


Figure 1. Human papillomavirus (HPV) prevalence in men of various populations. Each circle represents a study, the size of the circle indicates the no. of men tested, and the center of the circle is the point estimate of prevalence. CIN, cervical intraepithelial neoplasia; STD, sexually transmitted disease.

'A gender-neutral virus needs a gender-neutral vaccine'

NOMAN IS AN ISLAND

RACE TO END HPV

DONATE

NOMAN RACE

NOMAN CAMPAIGN

MEET THE NOMEN

GALLERY

PARTNERS

NEWS

CONTACT

Help stop the epidemic

DONATE

A gender-neutral virus needs a gender-neutral vaccine. We urge immediate action."



GENDER-NEUTRAL VACCINATION

Vaccinating males in Australia

Important information for young men National HPV Vaccination Program

- ✓ Helps prevent HPV-related cancers and disease
- ✓ For young men and women
- ✓ Just three doses provides the best protection against HPV

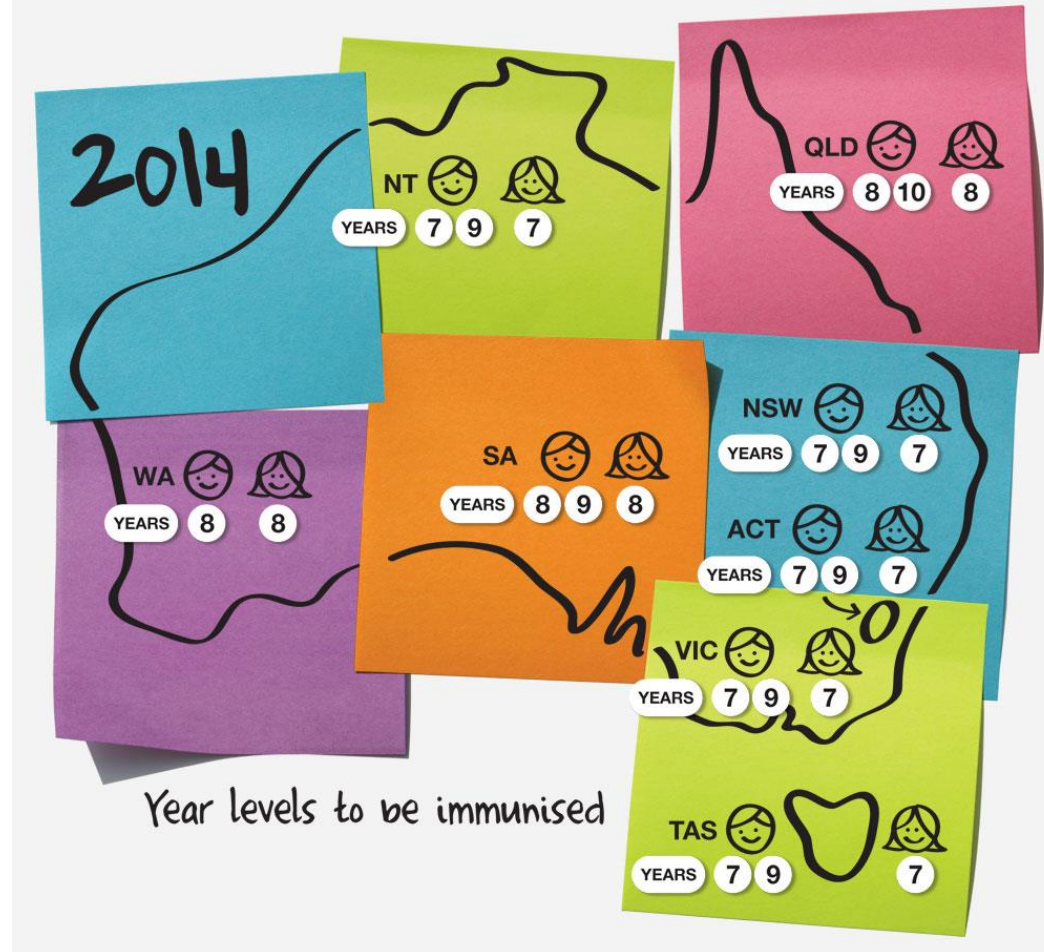
This HPV vaccination is not just for girls, but us fellas too.

That's right cuz, and make sure you get your parents to say 'yes' and sign the consent form.

In 2013, a vaccine to protect young people against the Human Papillomavirus (HPV) will be available in schools across Australia and in community health clinics in some remote areas.

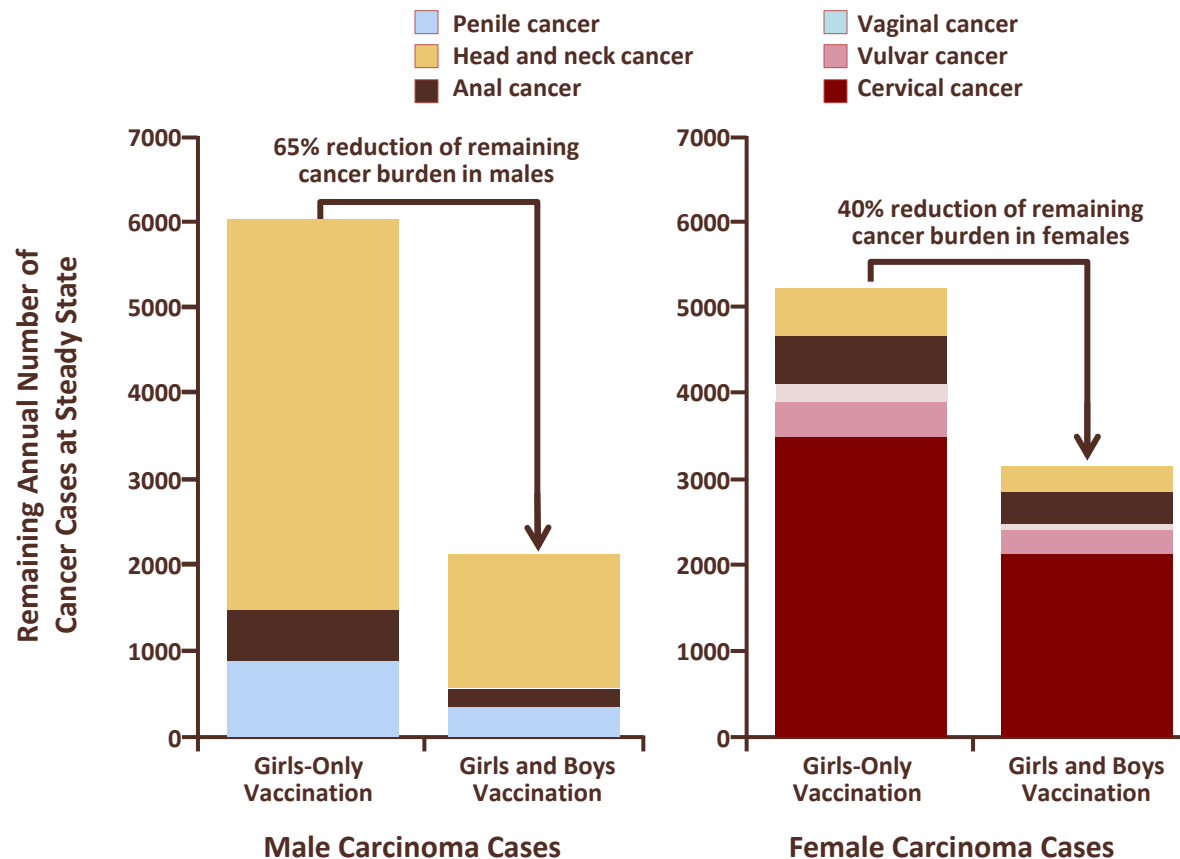
More information is available at australia.gov.au/hpv or freecall 1800 671 811*

*Charges may apply for calls from mobiles.



Estimated Impact of Gender-Neutral Vaccination^{1,a}

Annual Number of HPV 16/18–Related Carcinoma Cases Among Males and Females When Considering Gender-Neutral^b Vaccination Strategy Compared With Girls-Only^b Vaccination Strategy



^a70% vaccine coverage rates assumed for all cohorts; base case analysis presented at steady-state at 100 years.

^bAge 12 years.

Figure adapted from Marty R et al. *BMC Cancer*. 2013;13:10, with permission from BioMed Central.

1. Marty R et al. *BMC Cancer*. 2013;13:10.

www.hpv.com.au/males/default.aspx



FIND OUT MORE: HPV AND MALES

► Click for more information


**HPV AND
MALES**

**CAN HPV BE
PREVENTED?**

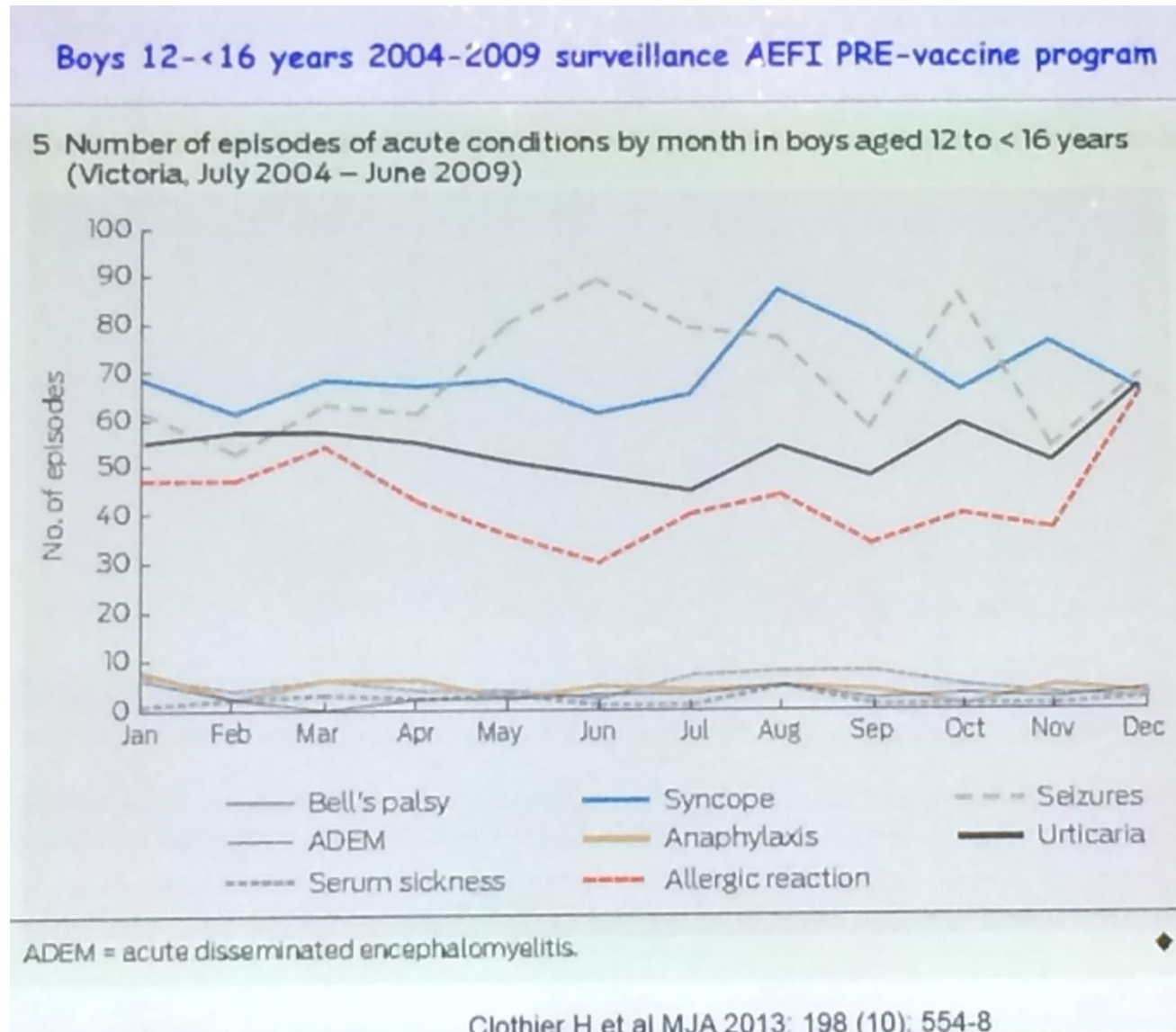
TREATMENT

FAQs

**TEST YOUR
KNOWLEDGE**

 Downloadable PDF

No episodes of acute events by month



Towards alternative dose schedules

- Logistical challenges
 - Attending 3 clinical visits in 6 months
 - Lack of provider reminder systems
 - Poor compliance to 3 doses
- High cost of 3 HPV vaccine doses

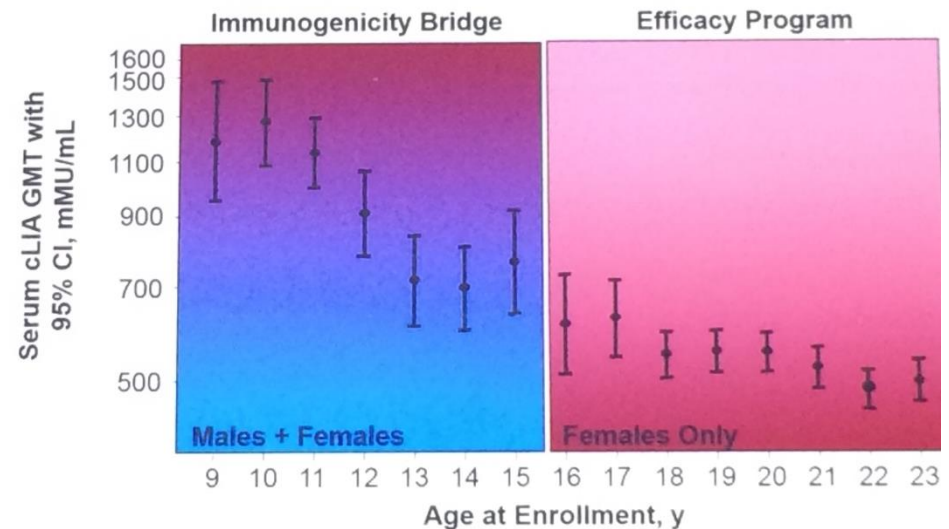


Figure based on Block *Pediatrics*, 2006 and Reisinger *PIDJ*, 2007

Two dose schedule

- STRICTLY for 9-13 year olds
- Non-inferior antibody levels compared to >15-24 year old with 3 doses (immunogenicity)
- Need to be given at least 6 months apart (memory B cells require at least 4 -6 months to mature)
- Cost effective and more pragmatic->WHO has changed its previous recommendation of a 3 dose schedule to a 2 dose schedule in females less than 15 years of age¹
- 2 dose schedule has been approved in Hong Kong Oct 2014

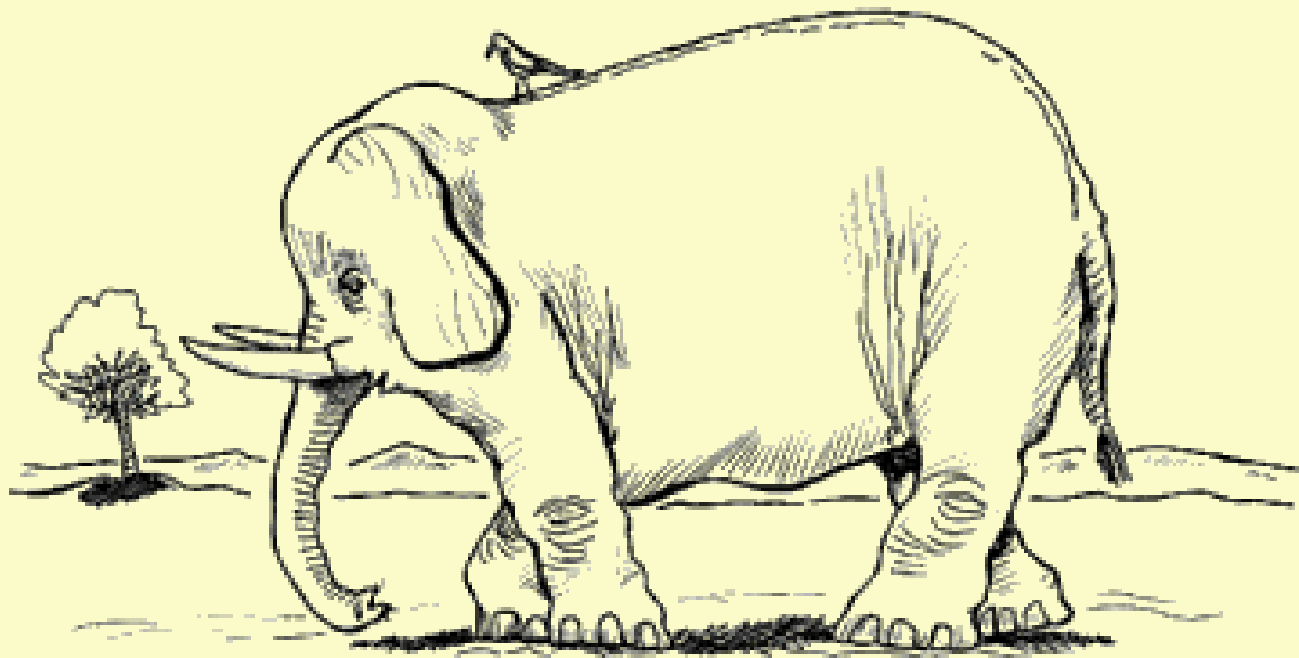
1. <http://www.who.int/wer/2014/wer8943/en/>

Conclusion

- Understand the context of where you are
- Engage multiple stakeholders
- Decide on the outcomes and model cost effectiveness for that country
- HPV prophylactic vaccines are highly effective
- Different protection profile

Engagement

can be much like giving birth to a baby elephant



- It starts off at a high level and works its way down
- The initiative often starts with much trumpeting and shouting
- It takes dozens of months to grow and develop before birth
- It becomes the focus of almost all of your attention

End result: *Another Baby Elephant* to take care of!

You cannot afford to wait for perfect conditions. Goal setting is often a matter of balancing timing against available resources. Opportunities are easily lost while waiting for perfect conditions.

(Gary Ryan Blair)