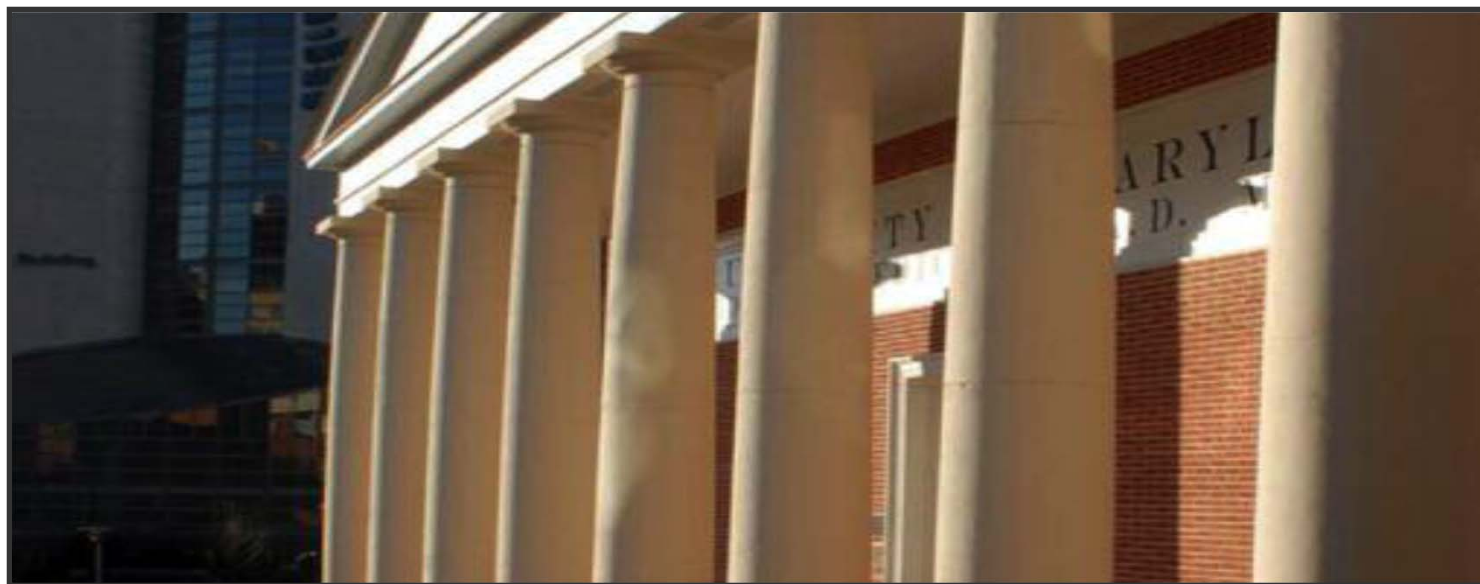


# The (Rapidly) Changing Landscape of HPV Associated Cancer



**Maryland State Council on Cancer Control Conference**

**November 29, 2011**

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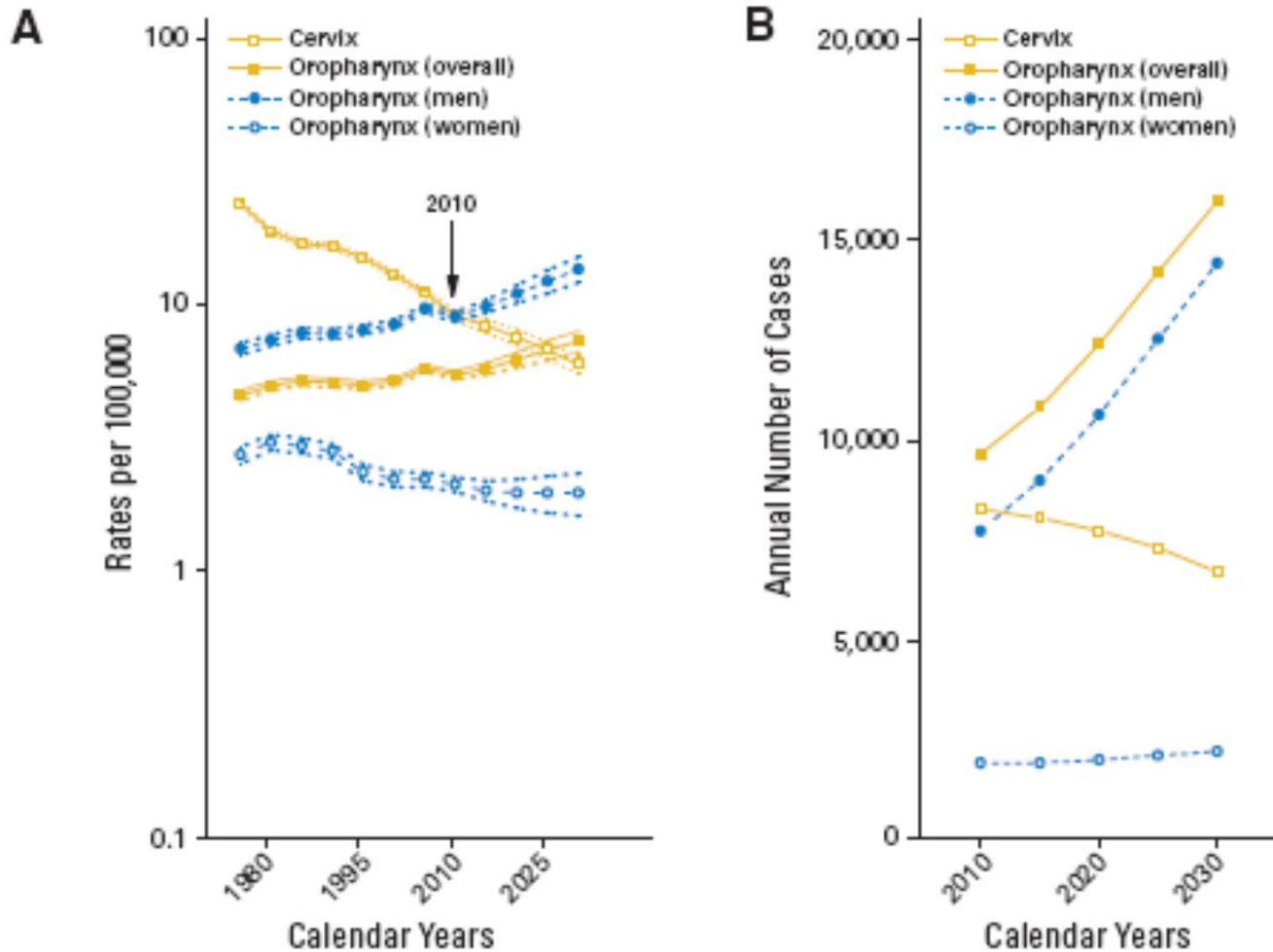
JOURNAL OF CLINICAL ONCOLOGY

ORIGINAL REPORT

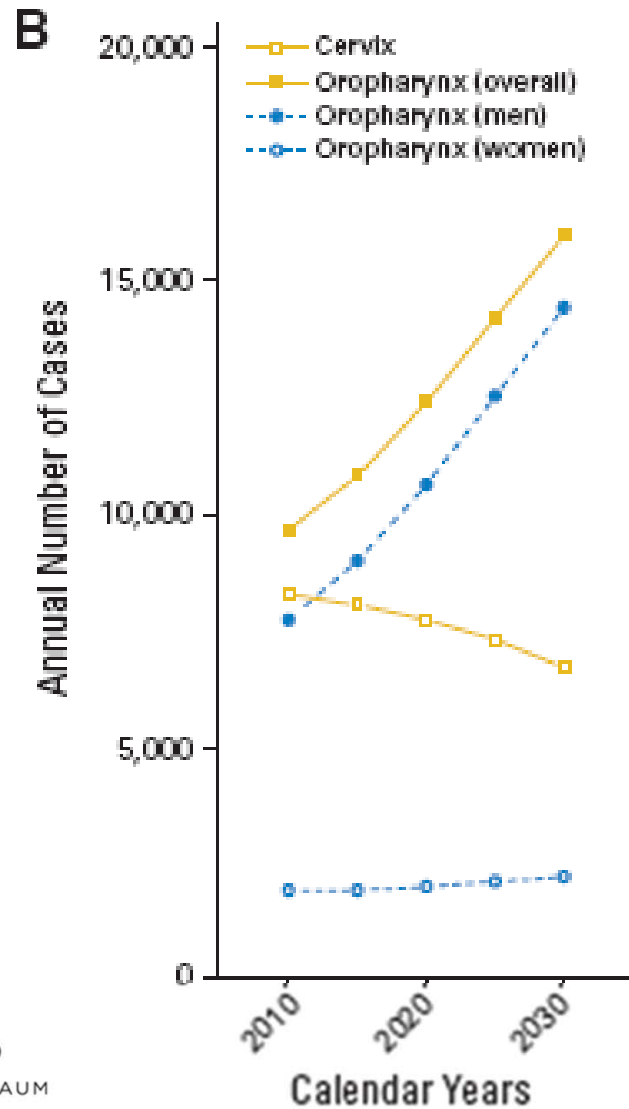
## Human Papillomavirus and Rising Oropharyngeal Cancer Incidence in the United States

*Anil K. Chaturvedi, Eric A. Engels, Ruth M. Pfeiffer, Brenda Y. Hernandez, Weihong Xiao, Esther Kim, Bo Jiang, Marc T. Goodman, Maria Sibug-Saber, Wendy Cozen, Lihua Liu, Charles F. Lynch, Nicolas Wentzensen, Richard C. Jordan, Sean Altekruze, William F. Anderson, Philip S. Rosenberg, and Maura L. Gillison*

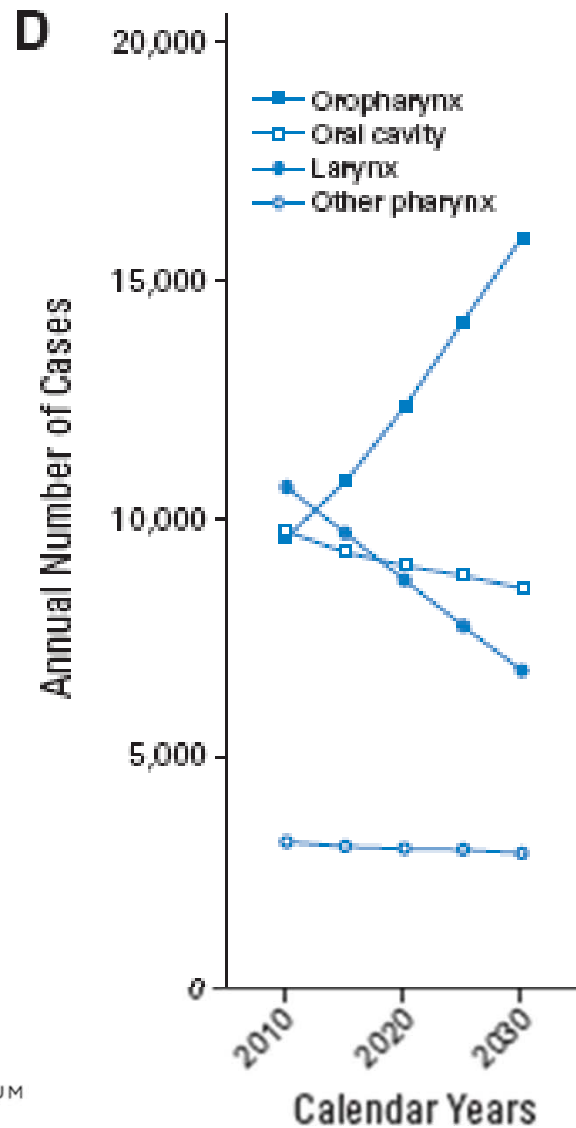
# Oropharyngeal cancer cases in men now outnumber cervical cancer cases in women



**By 2030 there will be four times as many cases of oropharyngeal cancer in men as cervical cancer in women**

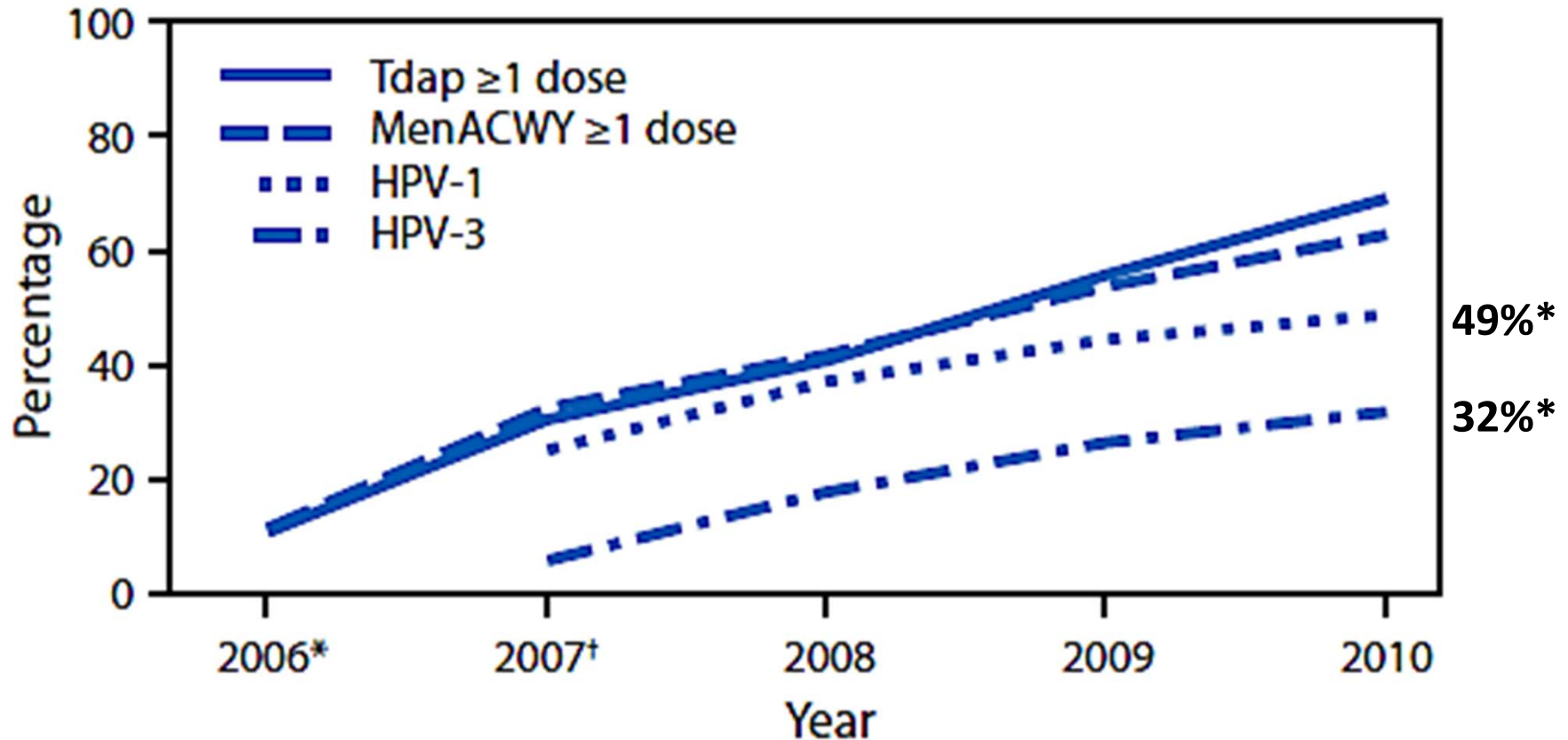


# HPV associated head and neck cancer is climbing rapidly while smoking related head and neck cancer is declining



# Trends in U.S. Vaccination Rates: Ages 13-17 Yrs

MMWR Vol 60, #33, August 26, 2011



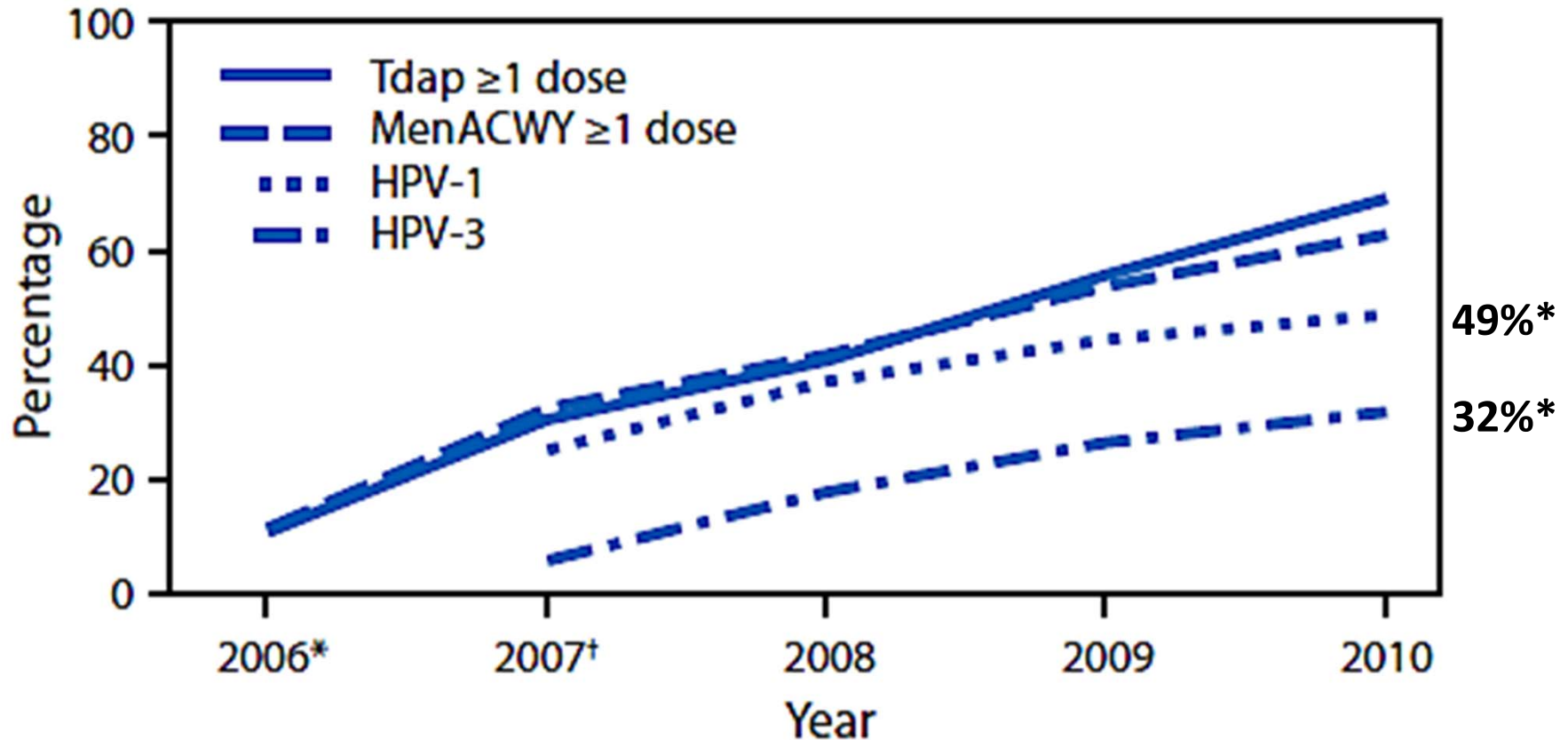
Abbreviations: Tdap = tetanus, diphtheria, acellular pertussis vaccine; MenACWY = meningococcal conjugate vaccine; HPV-1 = human papillomavirus vaccine,  $\geq 1$  dose; HPV-3 = human papillomavirus,  $\geq 3$  doses.

\* Tdap and MenACWY vaccination recommendations were published in March and October 2006, respectively.

† HPV vaccination recommendations were published in March 2007.

# Trends in U.S. Vaccination Rates: Ages 13-17 Yrs

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**\* Females; adolescent male vaccination 1.4%**

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# Implications of Current US HPV Vaccination Rates

- **Current vaccine uptake in the US is probably too low for herd immunity against the HPV types targeted by the vaccine**
- **CDC Advisory Committee on Immunization Practices voted Oct. 25 to upgrade its recommendation for male vaccination from “permissive” to “routine” – age 11-12**
  - **Current male vaccination rate: 1.4%**
- **In December, 2010, the FDA approved Gardasil (Merck) for a cancer prevention indication (anal cancer) in males; in 2009, it was approved for prevention of genital warts**



# One or two vaccine doses (Cervarix, GSK) can induce 4 years of protection against persistent (6 months) HPV infection with HPV16/18

Number of doses	Vaccine arm	Number of women	Number of events	Rate per 100 women	HPV vaccine efficacy % (95% CI)
3 doses	Control	3010	229	7.6%	84 (77-88)
	HPV	2957	37	1.3%	
2 doses	Control	380	24	6.3%	81 (63-94)
	HPV	422	5	1.2%	
1 dose	Control	188	15	8.0%	100 (79-100)
	HPV	196	0	0.0%	

- *Similar protection was seen against 12 month persistent infection*
- *It is unknown whether these results can be extrapolated to Gardasil*

*Kreimer et al, J Natl Cancer Inst, on-line September 9, 2011*

# Vaccine costs and doses

- **Developing world: the full 3 dose schedule is:**
  - expensive (even with tiered pricing)
  - logistically complicated (lack of adolescent vaccine platform)
- **Two doses partially overcomes both problems**
  - Long-term duration of protection?
- **Gardasil is already being given in a two dose schedule in parts of Canada, Mexico**
  - based on strong immune responses to two doses in young adolescents

# Duane Sewell, M.D. 1967-2011



- Physician Scientist, Associate Professor of Otorhinolaryngology, University of Maryland
- Instrumental in therapeutic HPV vaccine currently in clinical trial.