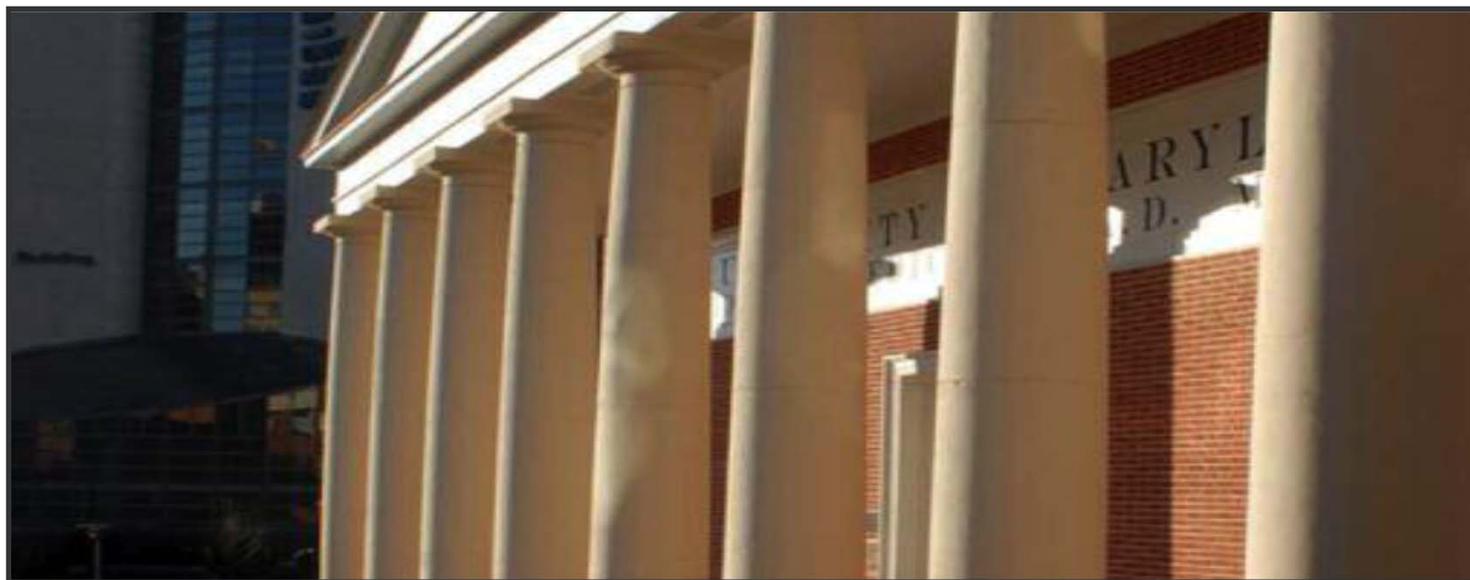


The (Rapidly) Changing Landscape of HPV Associated Cancer



Maryland State Council on Cancer Control Conference

November 29, 2011

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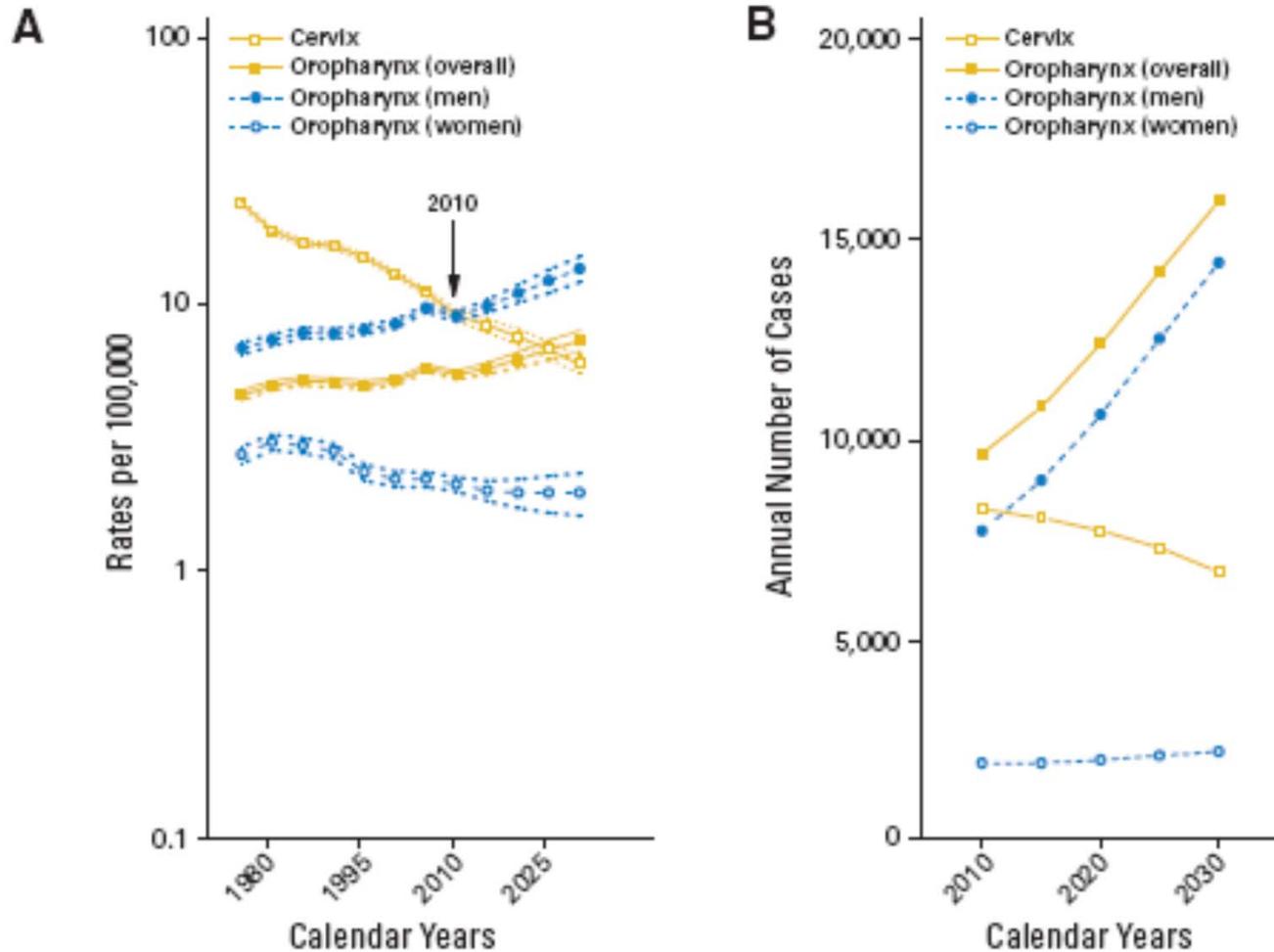
JOURNAL OF CLINICAL ONCOLOGY

ORIGINAL REPORT

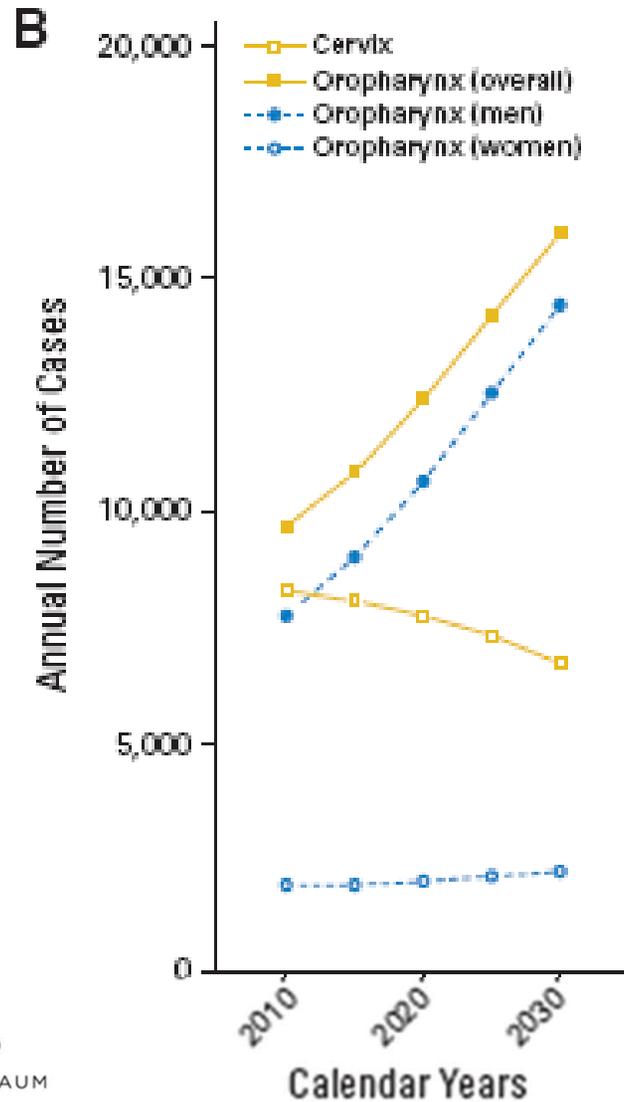
Human Papillomavirus and Rising Oropharyngeal Cancer Incidence in the United States

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

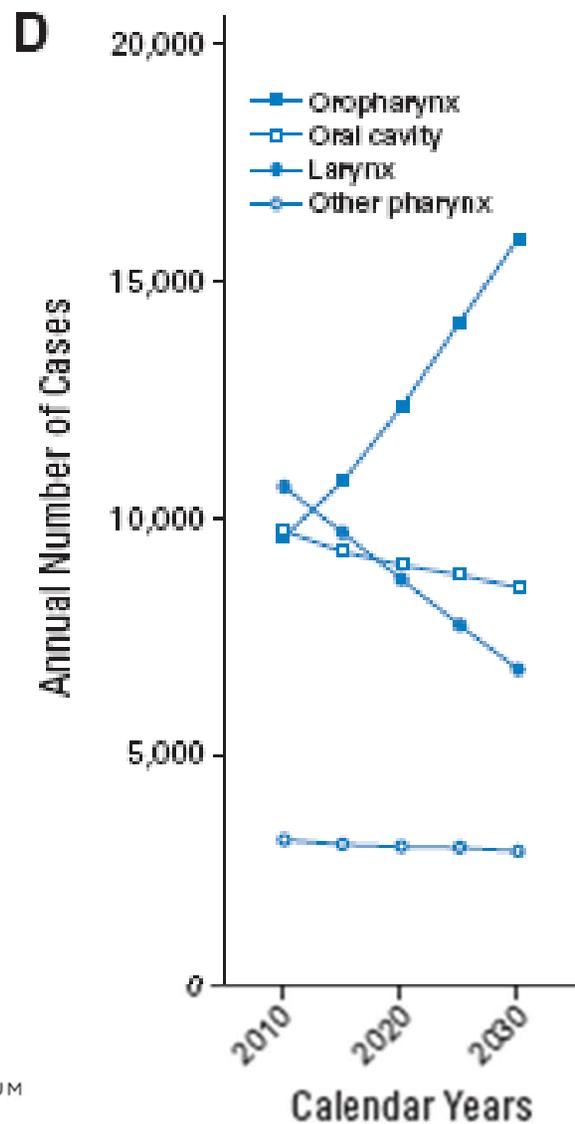
Oropharyngeal cancer cases in men now outnumber cervical cancer cases in women



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

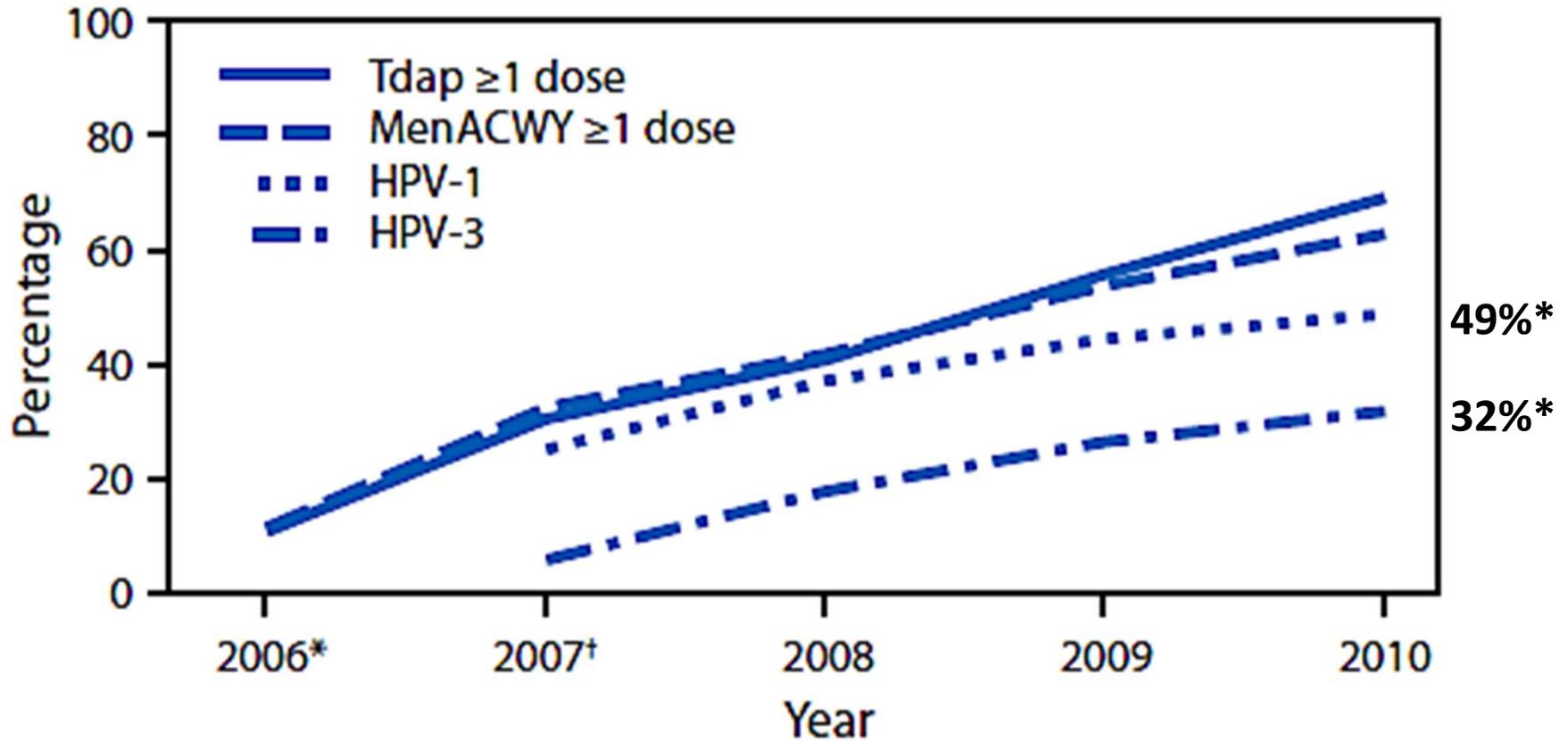


HPV associated head and neck cancer is climbing rapidly while smoking related head and neck cancer is declining



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

MMWR Vol 60, #33, August 26, 2011



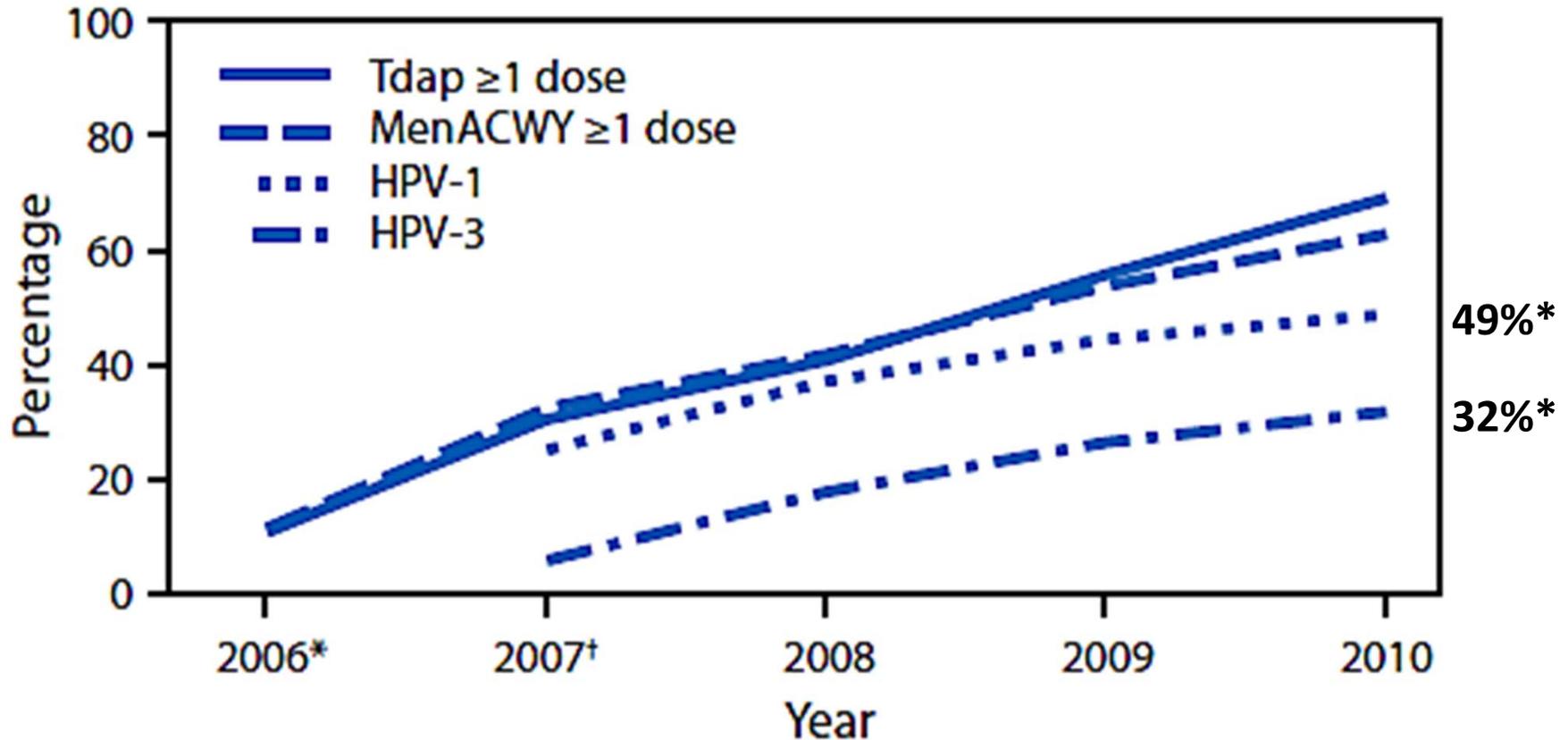
Abbreviations: Tdap = tetanus, diphtheria, acellular pertussis vaccine; MenACWY = meningococcal conjugate vaccine; HPV-1 = human papillomavirus vaccine, ≥1 dose; HPV-3 = human papillomavirus, ≥3 doses.

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

† HPV vaccination recommendations were published in March 2007.

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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.