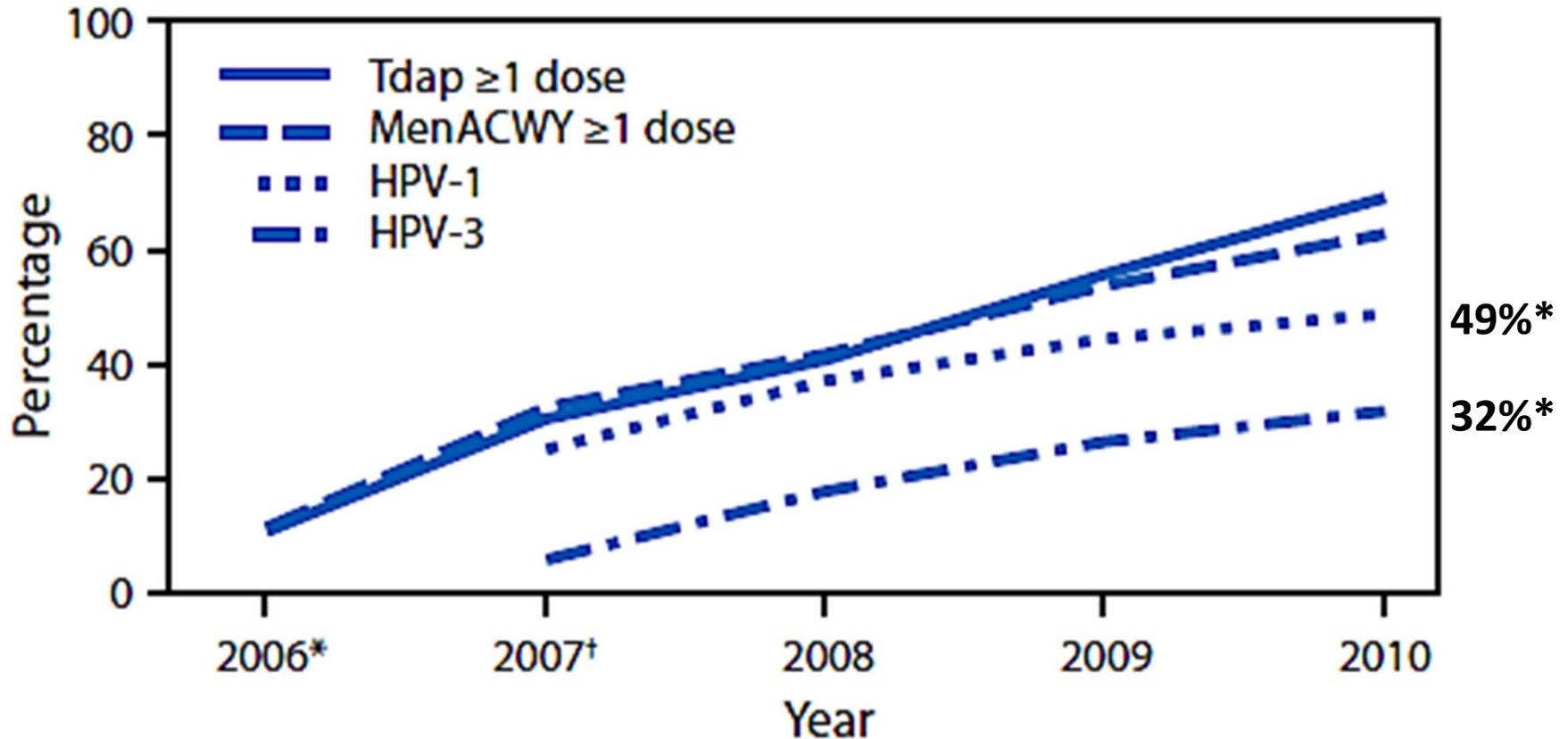


Trends in U.S. Vaccination Rates: Ages 13-17 Yrs

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

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.

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 is likely to vote (Oct. 25) on whether to upgrade its recommendation for male vaccination from “permissive” to “routine”**
 - **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**
 - **The incidence of HPV-positive oropharyngeal cancer, which predominantly affects males, is increasing in the US, and may soon surpass the incidence of cervical cancer in the US**

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