

**ASSESSING QUALITY OF
AND IMPLEMENTING
IMPROVEMENTS IN HPV
VACCINATION DELIVERY AT
A FAMILY MEDICINE
RESIDENCY CLINIC.**

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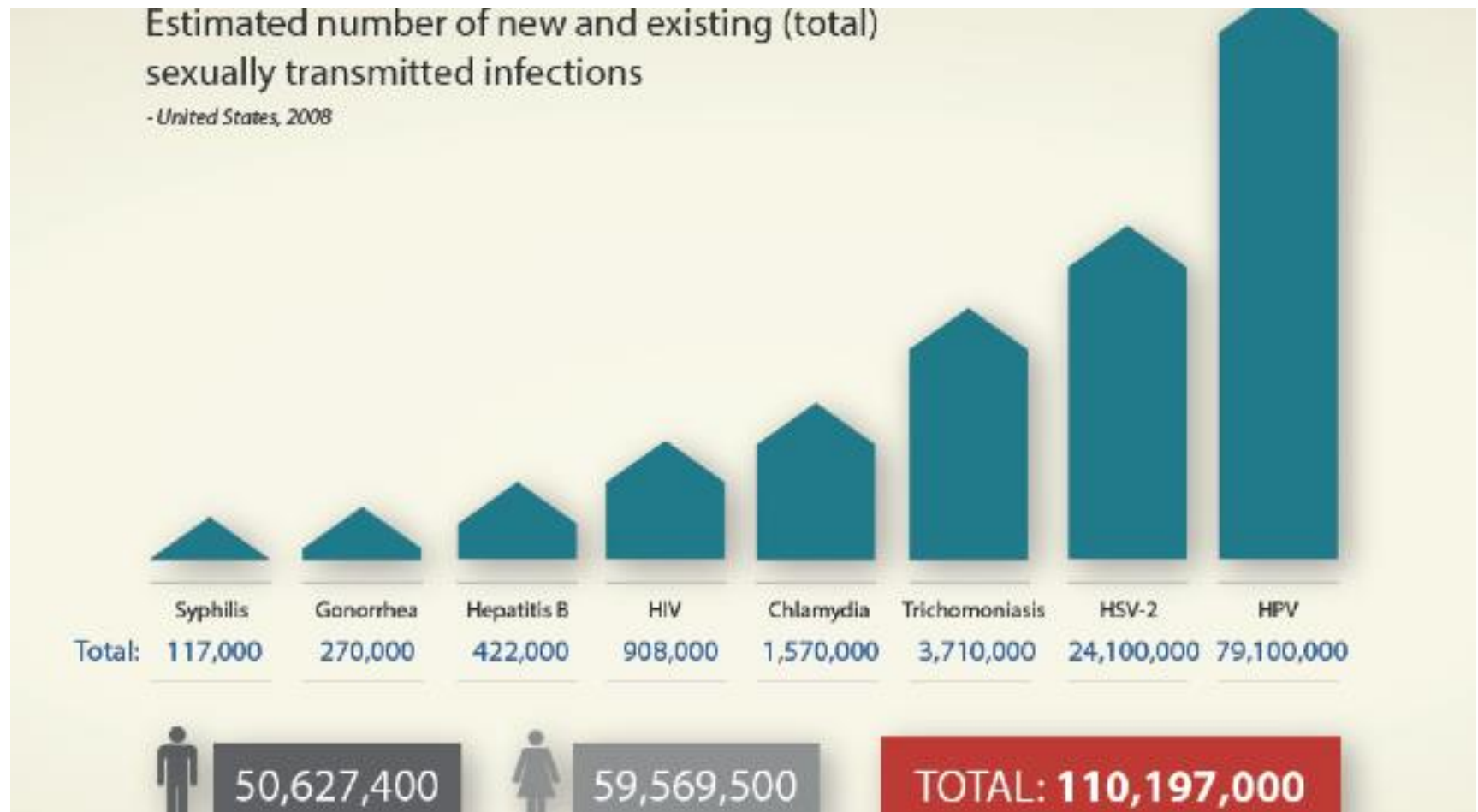
Disclosures

- I have no disclosures to make

Introduction and Background

- HPV is a common and burdensome disease.
 - In 2008, the US had: 14,100,100 new HPV infections and 79,100,000 total infected [1]
 - The annual cost: 8.0 billion dollars [4]

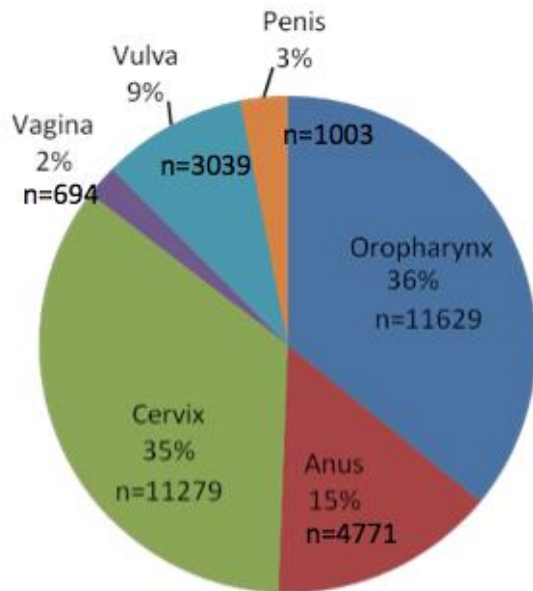
Introduction and Background



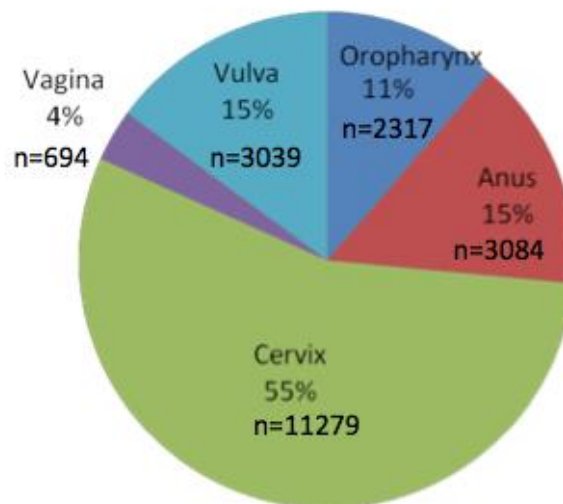
Source: CDC. <http://www.cdc.gov/std/stats/STI-Estimates-Fact-Sheet-Feb-2013.pdf>

Average Number of New HPV-associated Cancers Overall, and by Sex, in the United States, 2005-2009

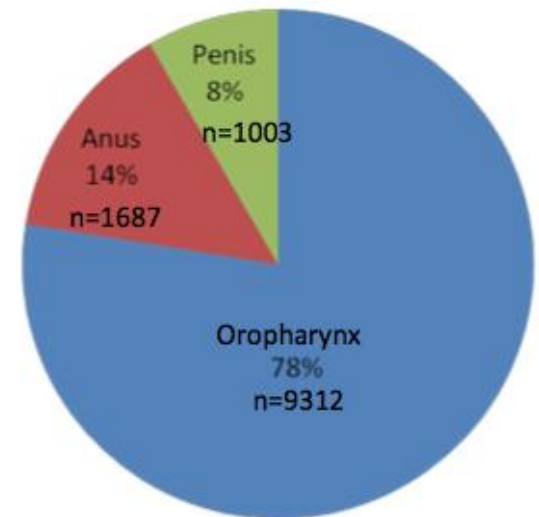
Total (N=32,415)



Women (N=20,413)



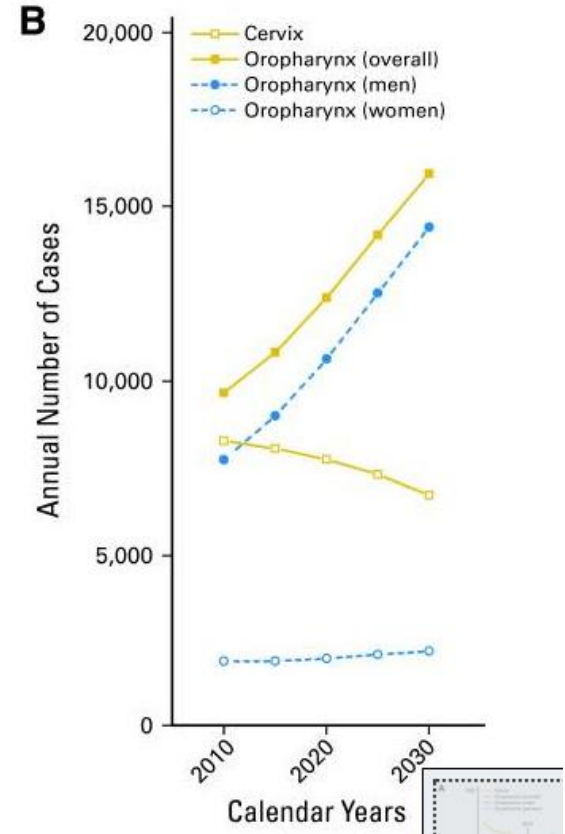
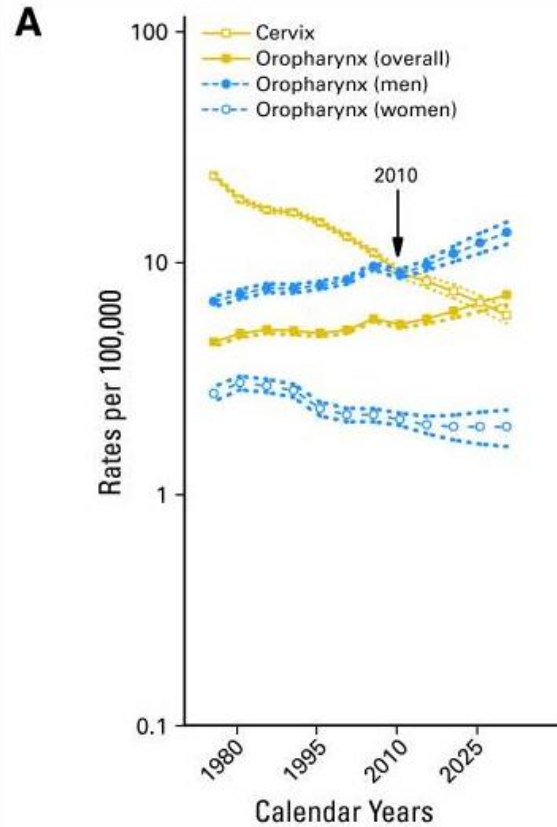
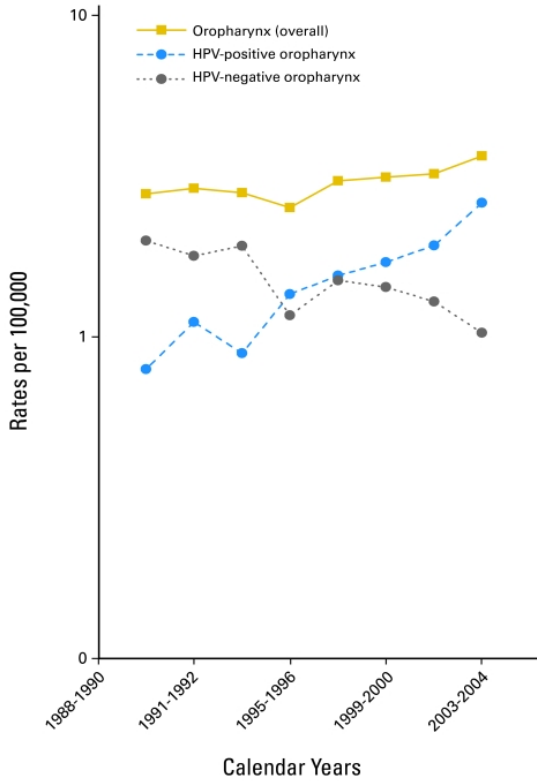
Men (N=12,002)



Jemal A et al. J Natl Cancer Inst 2013;105:175-201

*In addition: Cervical disease and pre-invasive cancers: CIN1,2,3~ 1.4 million; AIN3~4300; VIN3~27,000, VAIN3~7600 (CDC, unpublished data)

Oropharyngeal CA

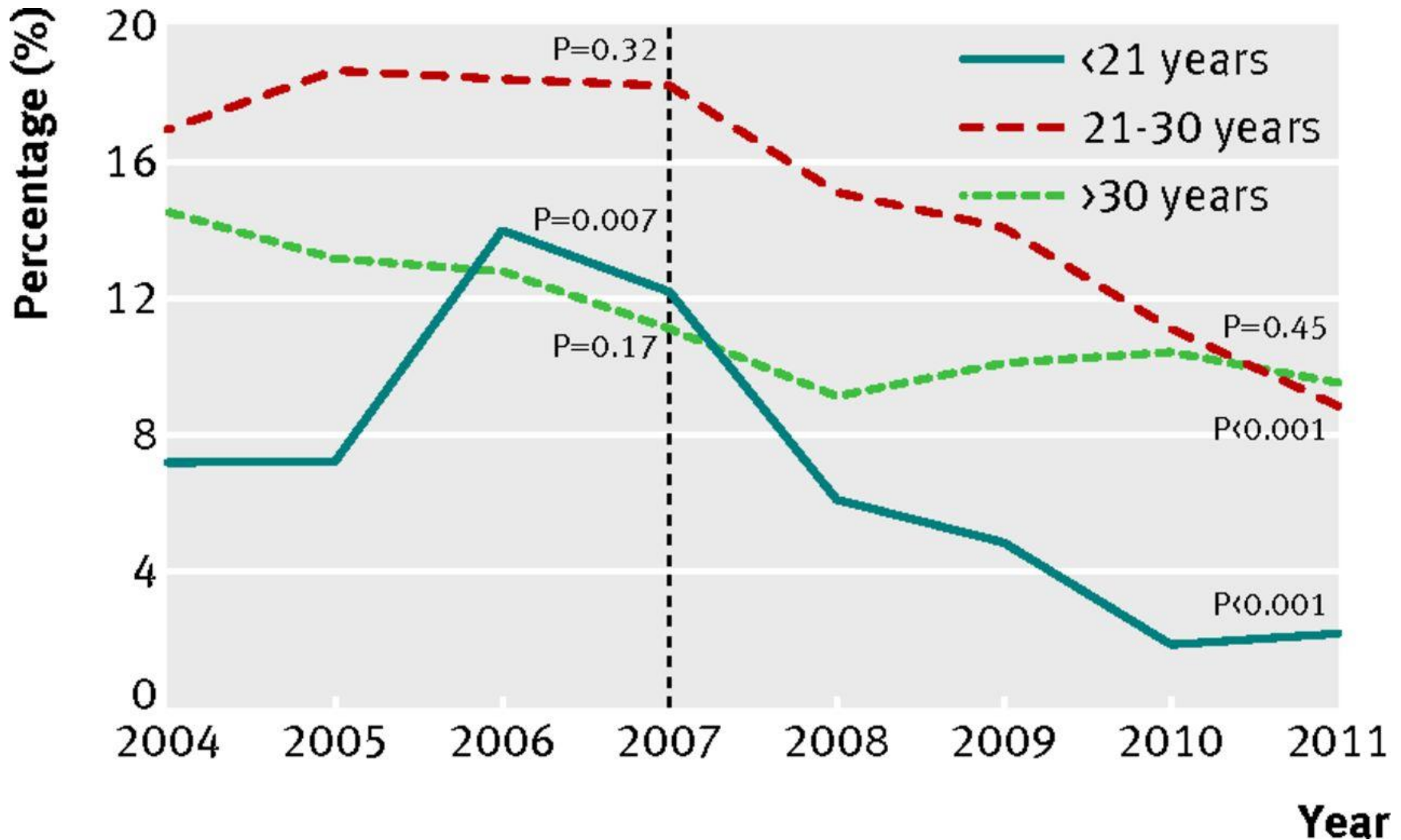


Chaturvedi et al. Human papillomavirus and rising oropharyngeal cancer incidence in the United States. J Clin Oncol. 2011 Nov 10;29(32):4294-301

Introduction and Background

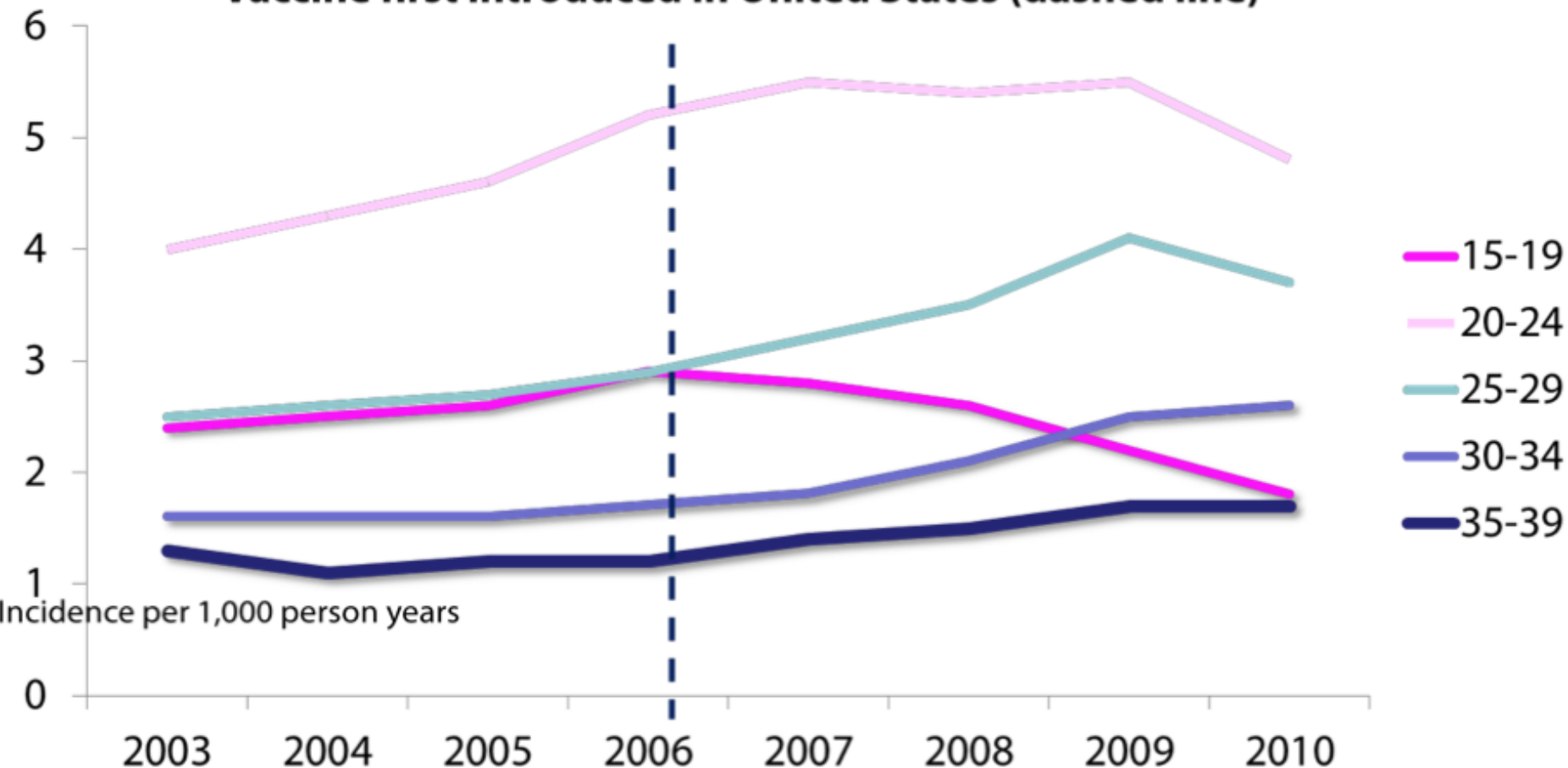
- **The HPV vaccines are effective and safe.**
 - **Multiple studies show: *Decreased genital warts and HPV-type specific prevalence*[3,4,5]**
 - **Vaccine Safety Datalink found no significant increased risk for:GBS, seizures, anaphylaxis, etc. [6]**

Proportion of Australian born heterosexual men diagnosed as having genital warts at first visit, by age group, 2004-11

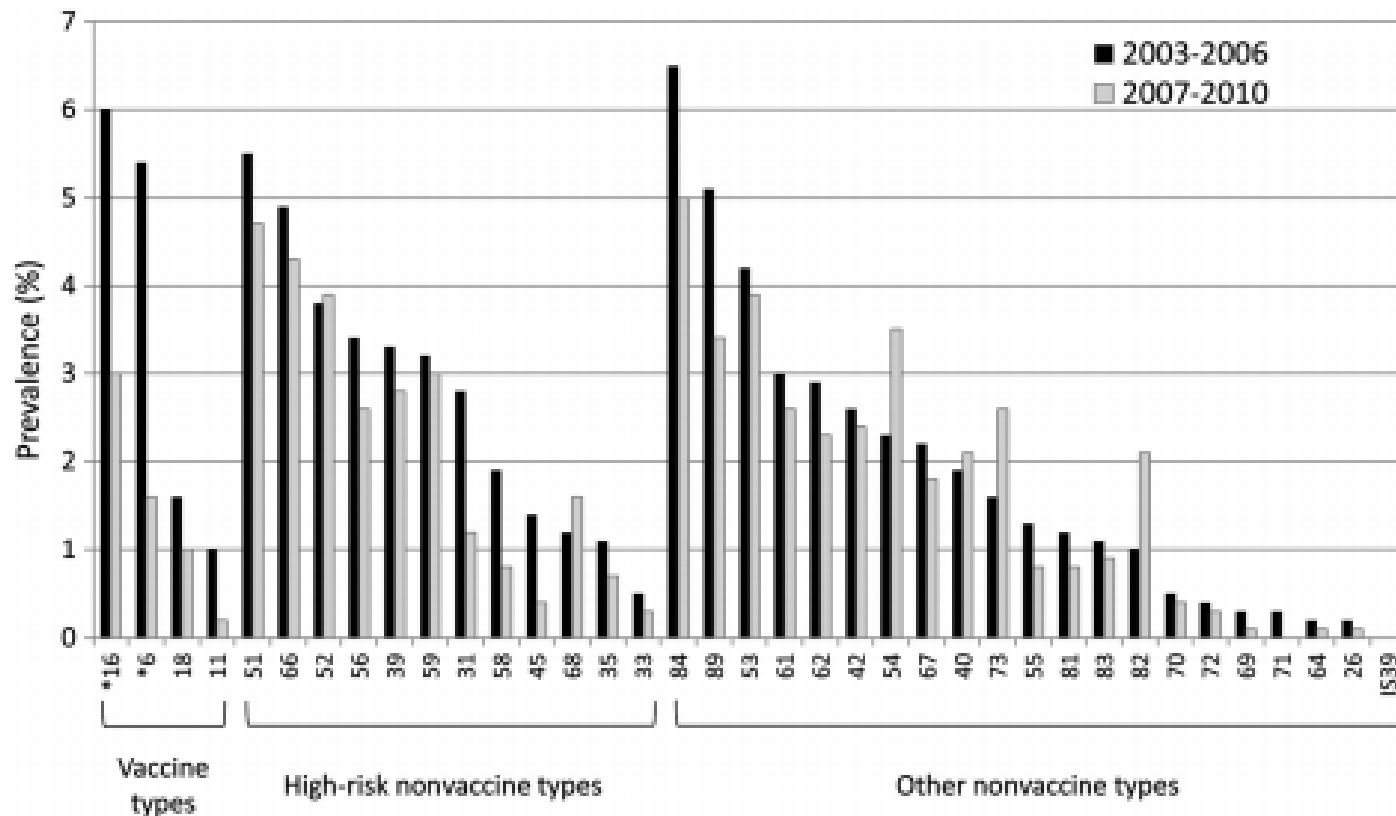


Genital Warts, Females 2003-2010 by Age Group, U.S. MarketScan® Database

Vaccine first introduced in United States (dashed line)



HPV type-specific prevalence



Markowitz LE, Hariri S, Lin C, et al. Reduction in HPV prevalence among young women following vaccine introduction in the United States, National Health and Nutrition Examination Surveys, 2003–2010. *J Infect Dis* 2013;208:385–93.

Gardasil 9

- **Females aged 9-26**
- **Males aged 9-15**
- **Adds coverage for serotypes:**
 - ▣ **31, 33, 45, 52, and 58**
- **Potential to prevent 90% of cervical, vulvar, vaginal and anal cancers**

Introduction and Background

- **HPV vaccination rates plateaued between 2010-2011 and the current 3-dose HPV vaccine coverage rate is only 33%. [7]**

HPV Vaccine Delivery Trends

TABLE 1. Estimated human papillomavirus (HPV) vaccine coverage among adolescent girls aged 13–17 years, by number of doses — National Immunization Survey–Teen, United States, 2007–2012

Characteristic	Survey year*											
	2007		2008		2009		2010		2011		2012	
	%	(95% CI)	%	(95% CI)	%	(95% CI)	%	(95% CI)	%	(95% CI)	%	(95% CI)
≥1 dose HPV vaccine†	25.1	(22.3–28.1)	37.2	(35.2–39.3) [§]	44.3	(42.4–46.1) [§]	48.7	(46.9–50.5) [§]	53.0	(51.4–54.7) [§]	53.8	(52.0–55.7)
≥2 doses HPV vaccine	16.9	(14.6–19.6)	28.3	(26.4–30.3) [§]	35.8	(34.1–37.6) [§]	40.7	(38.9–42.5) [§]	43.9	(42.3–45.6) [§]	43.4	(41.5–45.2)
≥3 doses HPV vaccine	5.9	(4.4–7.8)	17.9	(16.3–19.6) [§]	26.7	(25.2–28.3) [§]	32.0	(30.3–33.6) [§]	34.8	(33.2–36.4) [§]	33.4	(31.7–35.2)
Unvaccinated girls with ≥1 missed opportunity for HPV vaccine¶	20.8	(17.6–24.3)	30.8	(28.5–33.2) [§]	52.5	(50.1–55.0) [§]	67.9	(65.5–70.2) [§]	77.7	(75.7–79.6) [§]	84.0	(82.1–85.8) [§]
Potential coverage with ≥1 dose of HPV vaccine if no missed opportunity	40.6	(37.3–44.0)	56.5	(54.4–58.6) [§]	73.5	(71.9–75.1) [§]	83.5	(82.2–84.8) [§]	89.5	(88.5–90.5) [§]	92.6	(91.7–93.5) [§]

Abbreviation: CI = confidence interval.

* The number of adolescent girls with provider-reported vaccination histories for each survey year are as follows: 2007, n = 1,440; 2008, n = 8,607; 2009, n = 9,621; 2010, n = 9,220; 2011, n = 11,236; and 2012, n = 9,058.

† HPV, either quadrivalent or bivalent.

§ Statistically significant difference ($p \leq 0.05$) compared with the previous year's estimate.

¶ Missed opportunity defined as a health-care encounter occurring on or after a girl's 11th birthday and on or after March 23, 2007 (the publication date of the Advisory Committee on Immunization Practices' HPV4 recommendation), during which a girl received at least one vaccine but did not receive HPV vaccine.

Explanations for Trends

□ NIS-Teen 2012 Survey

Reason	Percentage
Vaccine Not Needed	19.1%
Vaccine Not Recommended	14.2%
Vaccine Safety Concerns	13.1%
Lack of Knowledge	12.6%
Not Sexually Active	10.1%

Introduction and Background

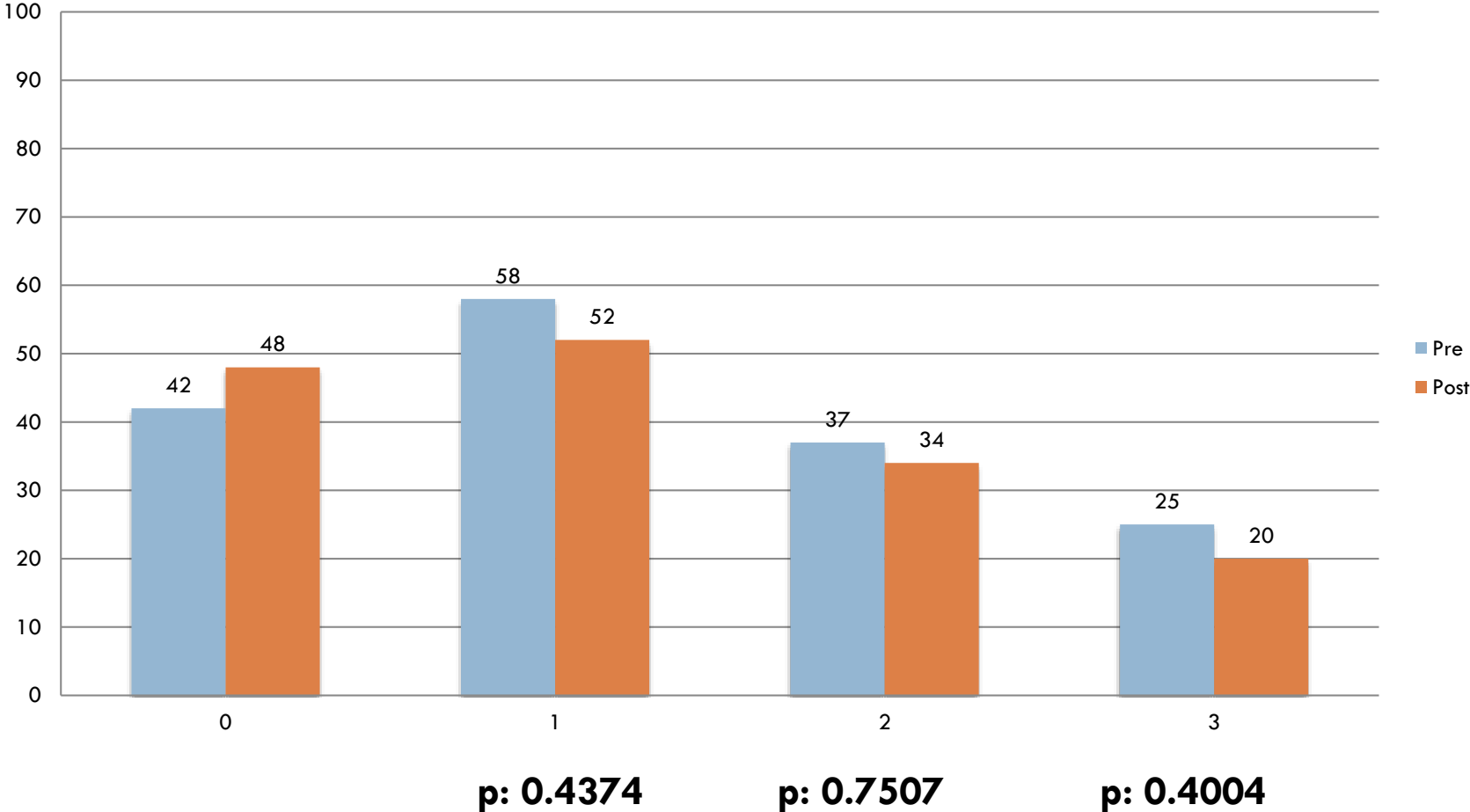
- **Many of the barriers to HPV vaccination are surmountable. This study was aimed to measure current HPV vaccination and apply simple interventions geared towards patient, parent and physician education; hence, increasing those rates over one year.**

Methods

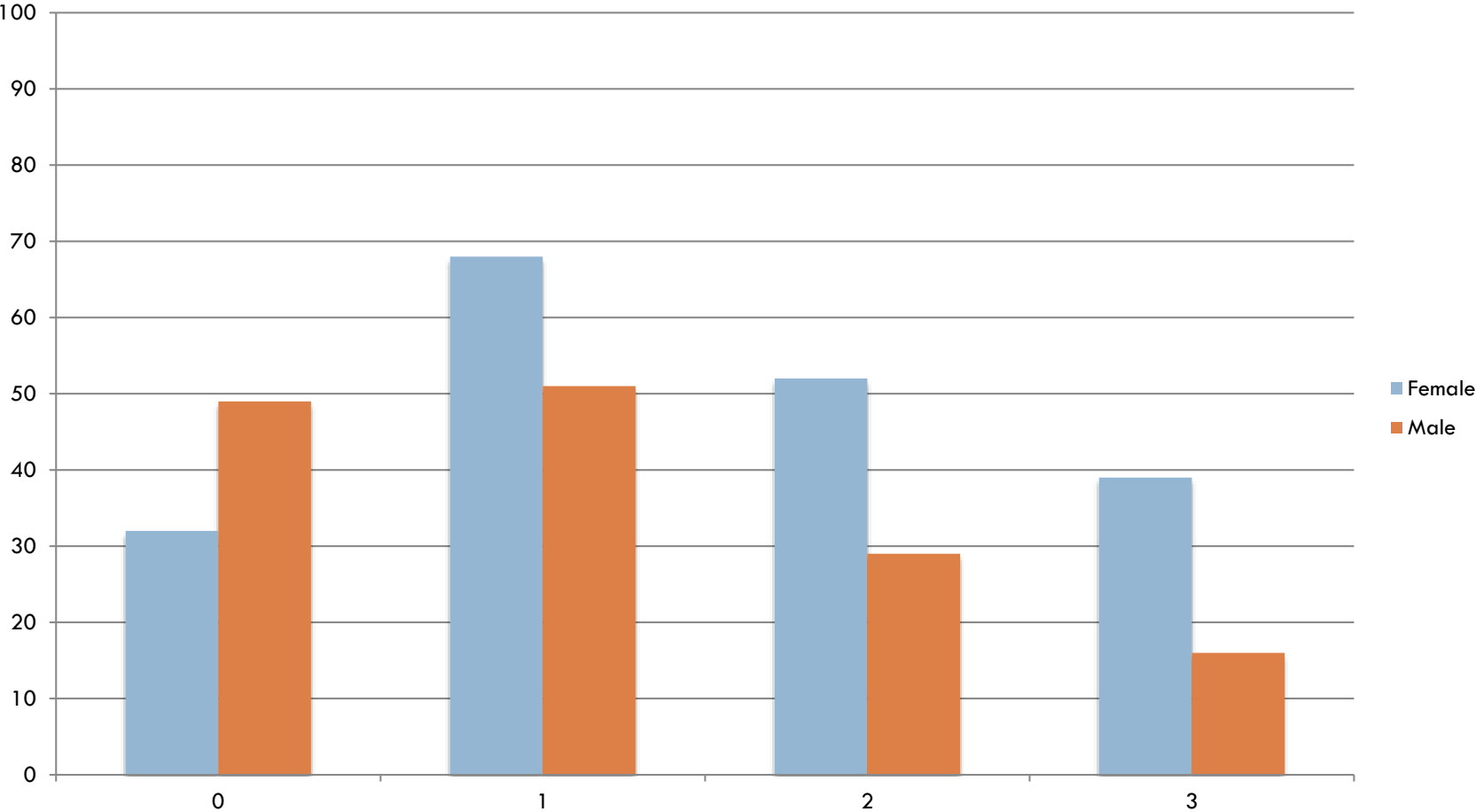
- **Three stage prospective interventional cohort study.**
- **First: Electronic chart review of all 13-17yo males and females including: vaccinations, age, race and insurance coverage**
- **Second: Interventions implemented:**
 - **Scheduling 2nd and 3rd dose follow-up visits at time of 1st dose**
 - **Patient-reminder cards and appointment-reminder calls.**
 - **Increased education for parents, providers and patients.**
- **Third: Repeat chart review after four months.**

Results-Overall

Percentage Vaccine Recieved

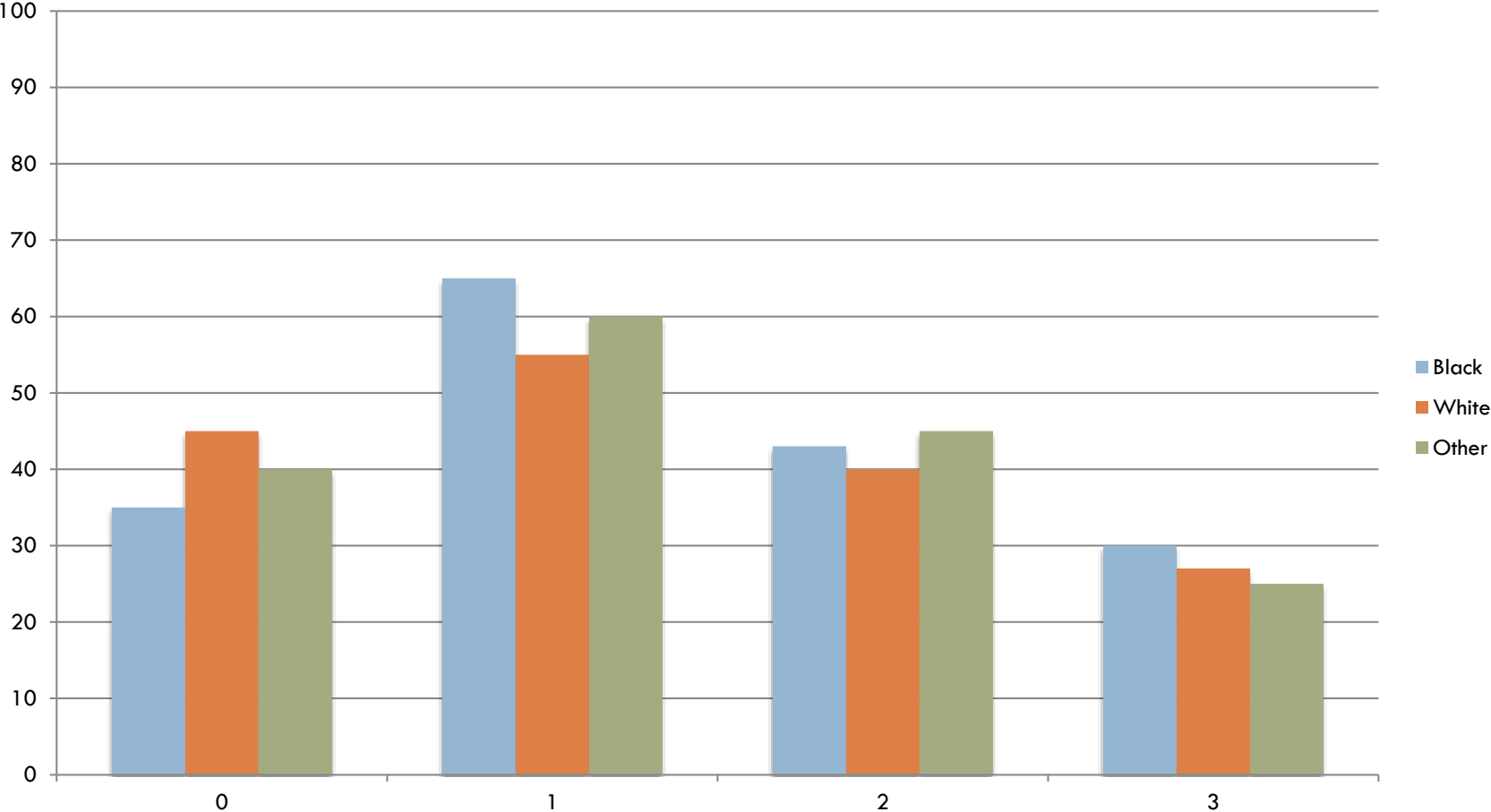


Results-Gender



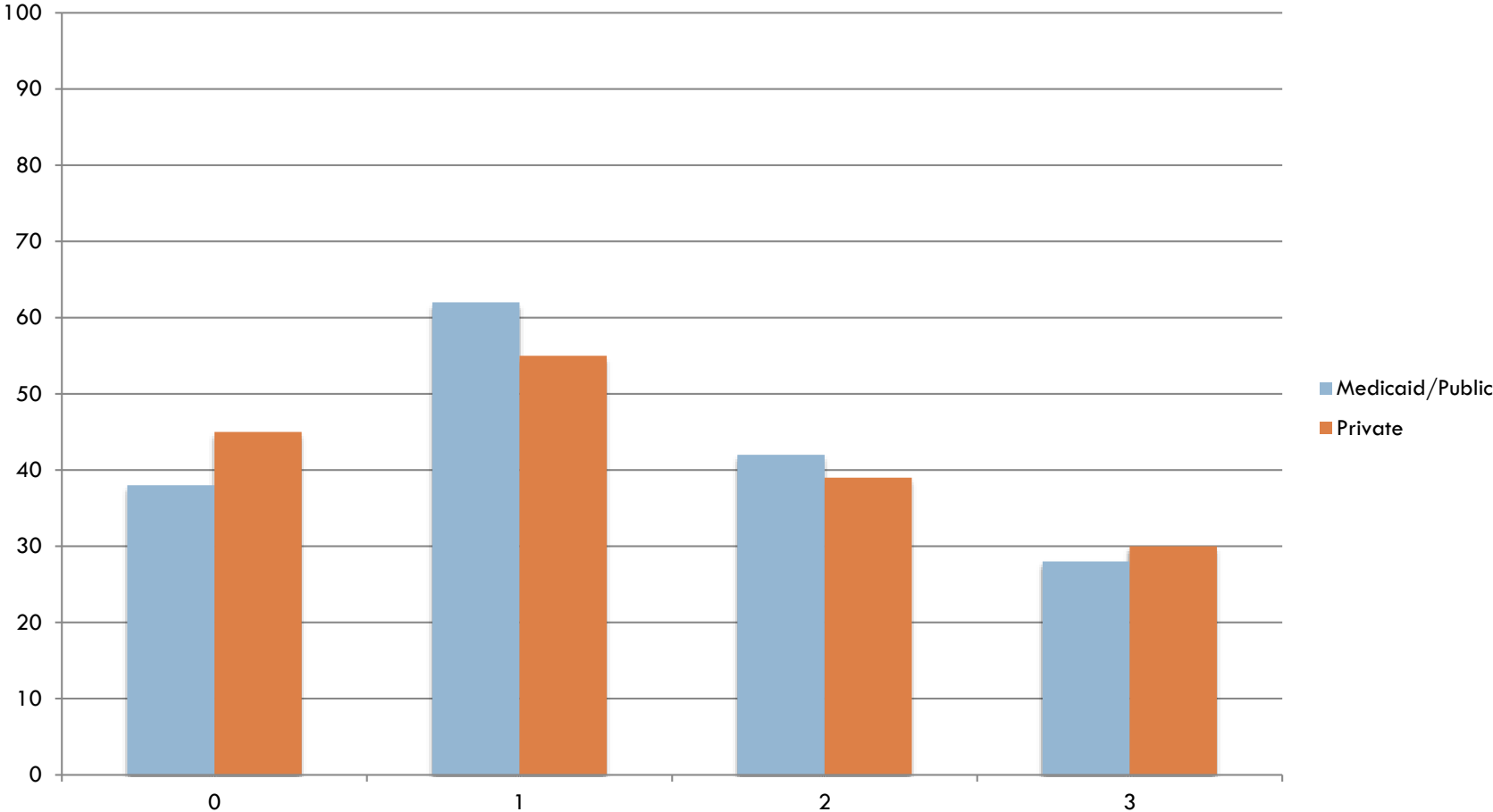
At least one dose- Female: 68% Male: 51% p-value: 0.0002

Results-Race



At least one dose- Black: 65% White: 55% p-value: 0.0275

Results-Insurance



At least one dose-Public: 62% Private: 55% p-value: 0.2367

Conclusion

- **There was no significant change in HPV vaccination rates following 4 months of stated intervention changes.**
- **There were significantly fewer doses given to men and whites compared to females and blacks, respectively.**
- **The interventions were easy to implement and maintain.**

Limitations

- **Study limited by short 4 month course**
- **January through April timeline**
- **Chart review component model**
- **High turnover rate in staff.**

Future

- **Given ease of implementation and heavy burden of HPV-associated disease, an extended trial (1-2 years) of interventions with added focus on above disparities seems warranted to truly assess effectiveness**

References

- **1. <http://www.cdc.gov/std/stats/STI-Estimates-Fact-Sheet-Feb-2013.pdf>**
- **2. Chesson H et al. Vaccine 2012;30: 6016-19**
- **3. Ali H et al. BMJ 2013; 346**
- **4. Flagg E et al. AJP 2013**
- **5. Markowitz LE, Hariri S, Lin C, et al. Reduction in HPV prevalence among young women following vaccine introduction in the United States, National Health and Nutrition Examination Surveys, 2003-2010. J Infect Dis 2013;208:385-93.**
- **6. Gee J et al. Vaccine 2011;29:8279-84**
- **7. 2012 National Immunization Survey-Teen (NIS-Teen)**

Questions?

