

PROTECTING OUR COMMUNITIES WITH THE HPV VACCINE

The Time to Act is Now

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DISCLOSURE

- Medical director of Pedspal

OBJECTIVES

- Describe HPV and how it relates to HPV-associated diseases
 - Understand the importance of and barriers to HPV vaccination
 - Identify communication challenges and opportunities to discuss HPV vaccination
 - Describe the importance of physicians and other vaccine providers in recommending and ensuring completion of the HPV vaccination series
-

Understanding the Burden

HPV INFECTION & DISEASE

HPV INFECTION

- Most females and males will be infected with at least one type of HPV at some point in their lives
 - Estimated 79 million Americans currently infected
 - 14 million new infections/year in the US
 - HPV infection is most common in people in their teens and early 20s
- Most people will never know that they have been infected

HPV TYPES DIFFER IN THEIR DISEASE ASSOCIATIONS

~40 Types

Mucosal sites of infection

Cutaneous sites of infection

~ 80 Types

**High risk (oncogenic)
HPV 16, 18**

**Low risk (non-oncogenic)
HPV 6, 11**

**Cervical Cancer
Anogenital Cancers
Oropharyngeal Cancer Cancer
Precursors
Low Grade Cervical Disease**

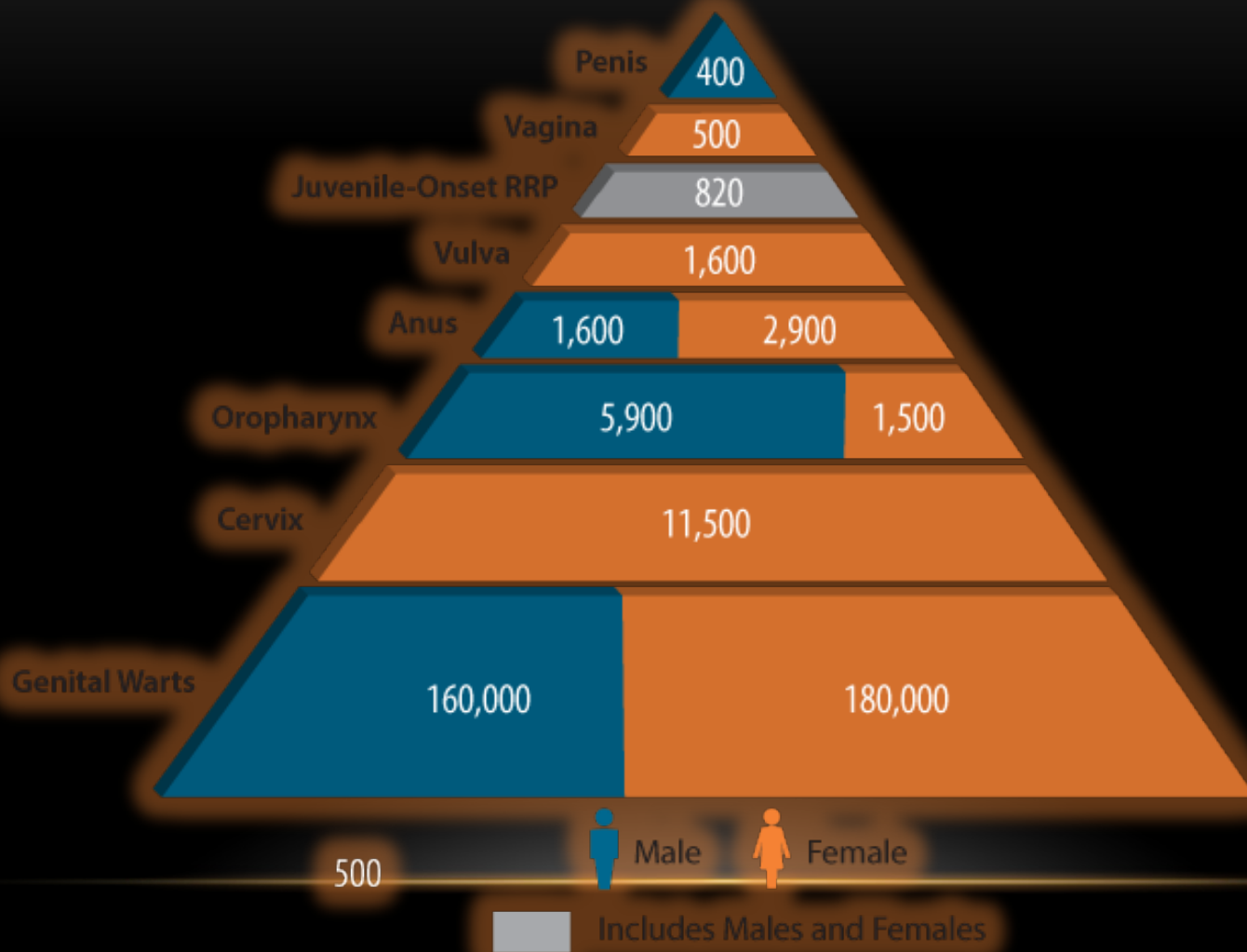
**Genital Warts
Laryngeal Papillomas
Low Grade Cervical Disease**

**"Common"
Hand and Foot
Warts**

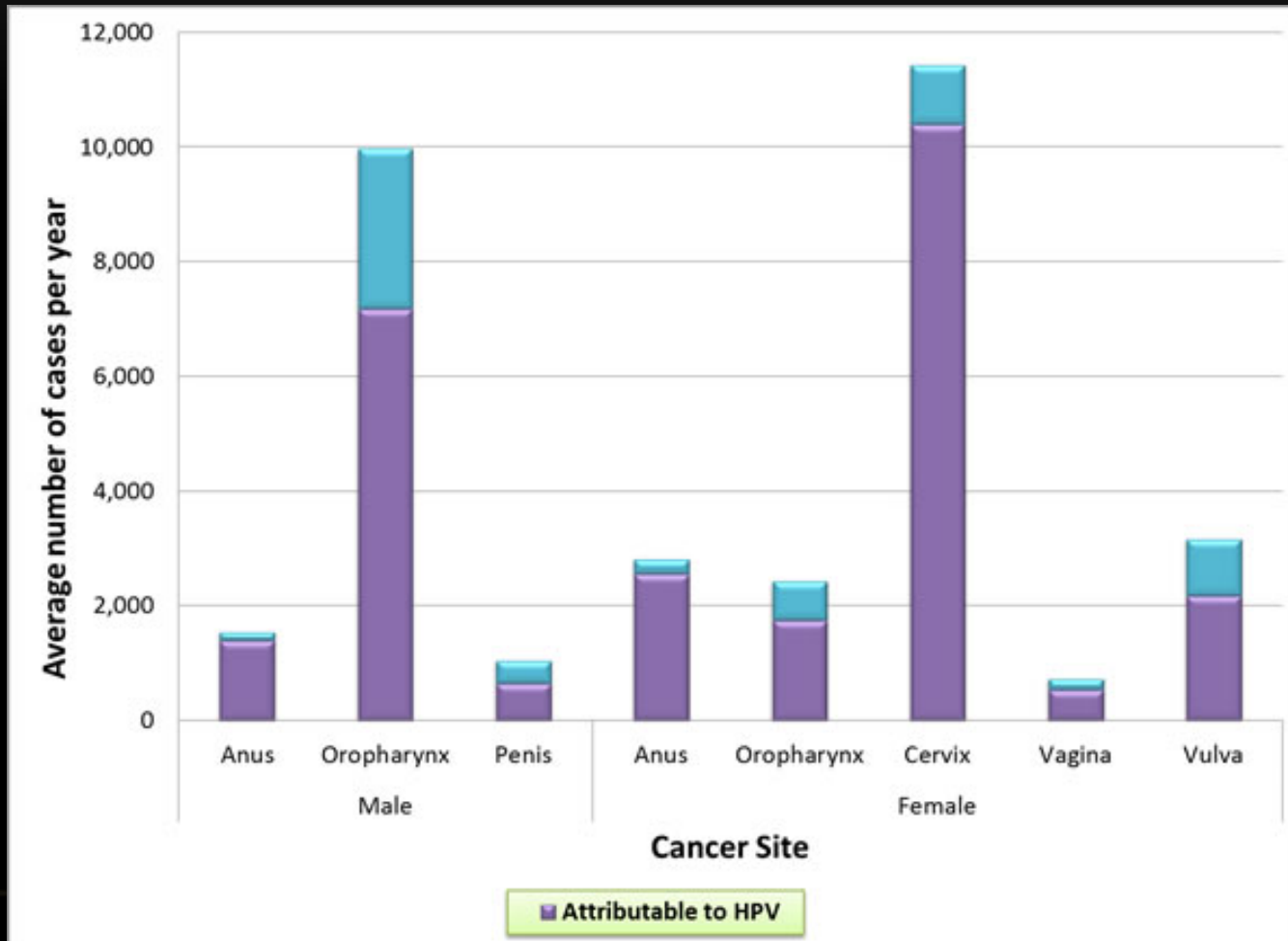
CANCERS ATTRIBUTED TO HPV, U.S.

| Cancer site | Average number of cancers per year in sites where HPV is often found | | | Percentage of cancers per year probably caused by HPV | Average number of cancers per year probably caused by HPV† | | |
|--------------|--|---------------|---------------|---|--|---------------|---------------|
| | Male | Female | Both Sexes | | Male | Female | Both Sexes |
| Anus | 1,549 | 2,821 | 4,370 | 91% | 1,400 | 2,600 | 4,000 |
| Cervix | 0 | 11,422 | 11,422 | 91% | 0 | 10,400 | 10,400 |
| Oropharynx | 9,974 | 2,443 | 12,417 | 72% | 7,200 | 1,800 | 9,000 |
| Penis | 1,048 | 0 | 1,048 | 63% | 700 | 0 | 700 |
| Vagina | 0 | 735 | 735 | 75% | 0 | 600 | 600 |
| Vulva | 0 | 3,168 | 3,168 | 69% | 0 | 2,200 | 2,200 |
| TOTAL | 12,571 | 20,589 | 33,160 | | 9,300 | 17,600 | 26,900 |

NUMBERS OF CANCERS AND GENITAL WARTS ATTRIBUTED TO HPV INFECTIONS, U.S.



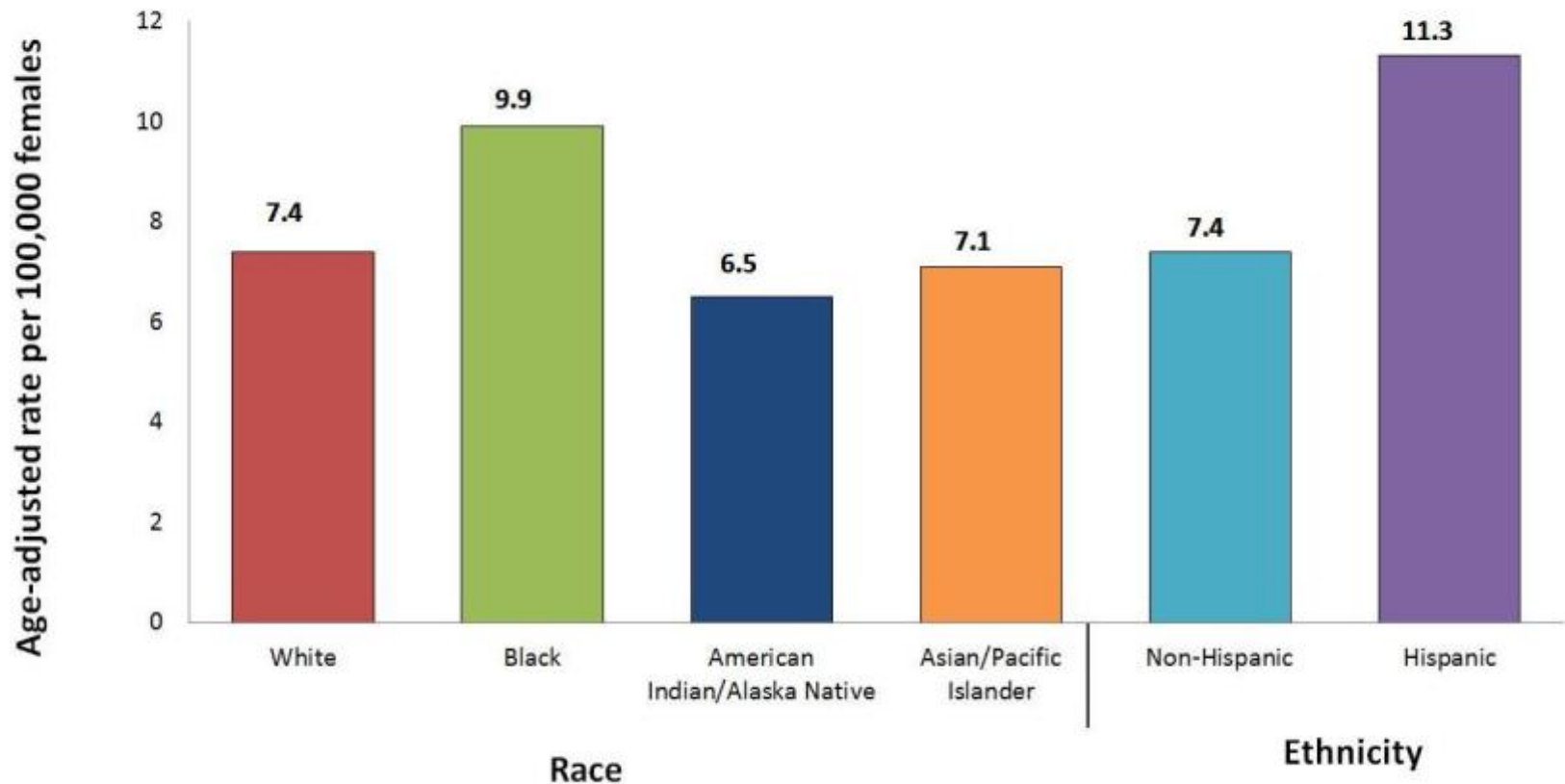
HOW MANY CANCERS ARE LINKED WITH HPV EACH YEAR?



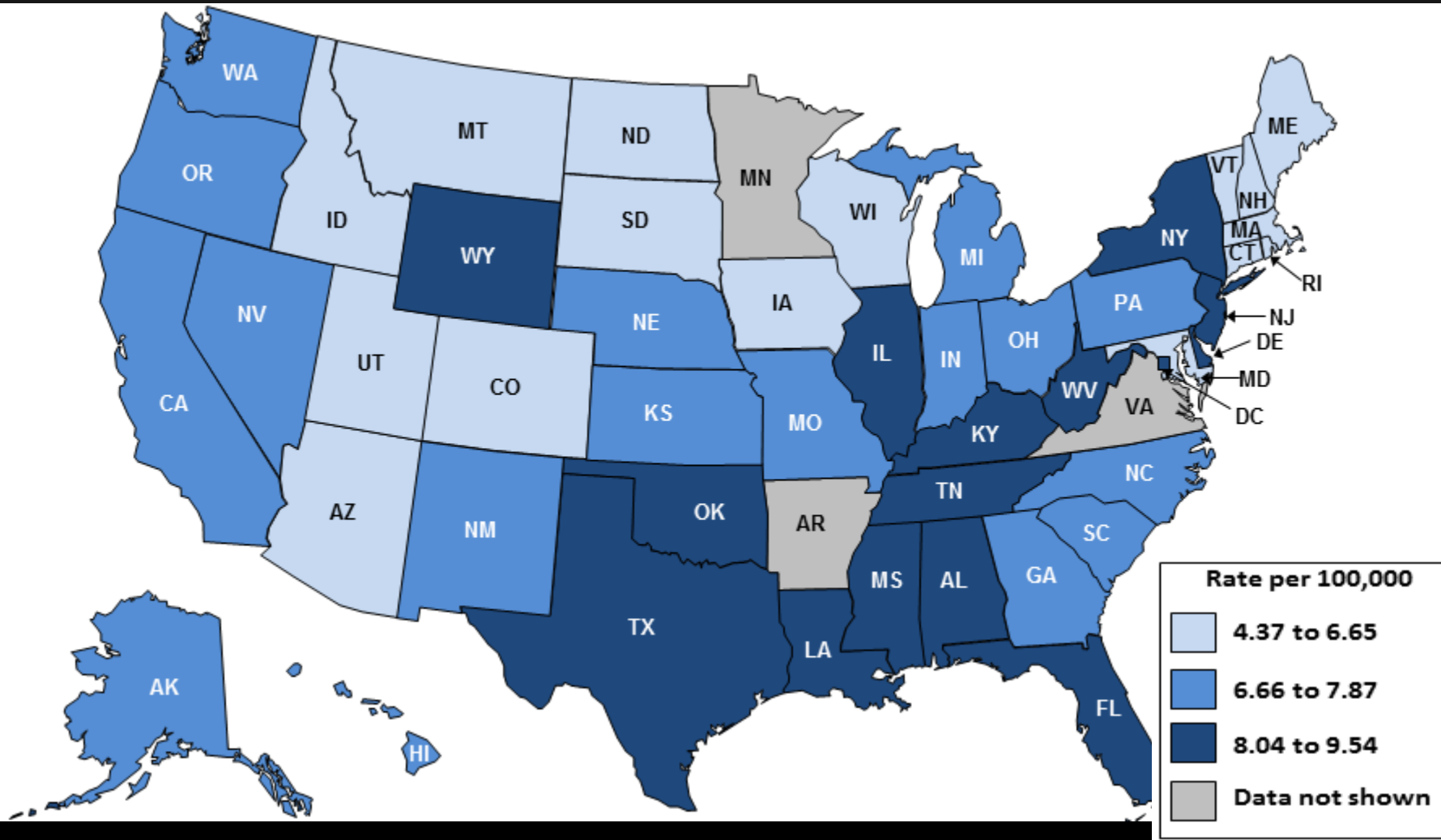
CERVICAL CANCER

- Cervical cancer is the most common HPV-associated cancer among women
 - 500,000+ new cases and 275,000 attributable deaths world-wide in 2008
 - 11,000+ new cases and 4,000 attributable deaths in 2011 in the U.S.
- 37% cervical cancers occur in women who are between the ages of 20 and 44
 - 13% (or nearly 1 in 8) between 20 and 34
 - 24% (or nearly 1 in 4) between 35 and 44

HPV-ASSOCIATED CERVICAL CANCER RATES BY ETHNICITY, UNITED STATES, 2004–2008



HPV-Associated Cervical Cancer Incidence Rates by State, United States, 2006-2010



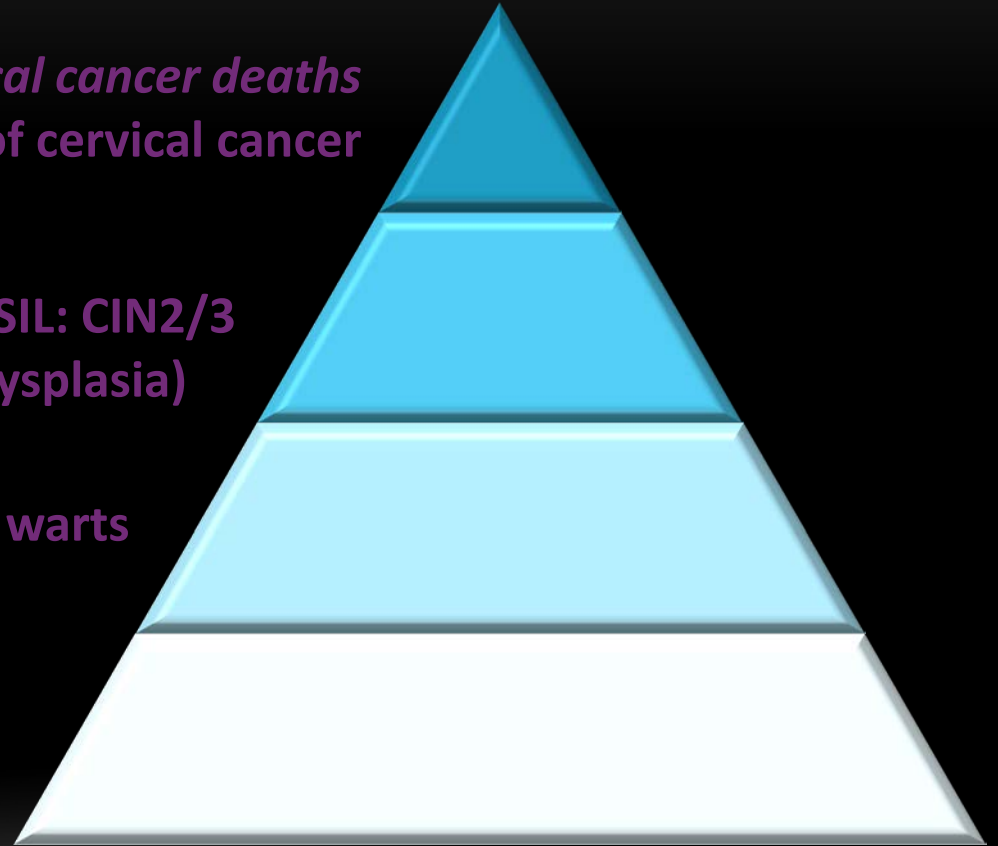
WITHOUT VACCINATION, ANNUAL BURDEN OF GENITAL HPV-RELATED DISEASE IN U.S. FEMALES:

4,000 cervical cancer deaths
10,846 new cases of cervical cancer

330,000 new cases of HSIL: CIN2/3
(high grade cervical dysplasia)

1 million new cases of genital warts

1.4 million new cases of LSIL: CIN1
(low grade cervical dysplasia)



3 million cases and \$7 billion

HPV OROPHARYNGEAL CANCERS

- Prevalence of HPV isolated from oropharyngeal cancers increased from 16.4% in 1980's to 71.7% in the 2000's
- Population incidence of HPV-positive oropharyngeal cancers increased by 225% while HPV-negative oropharyngeal cancers decreased by 50%

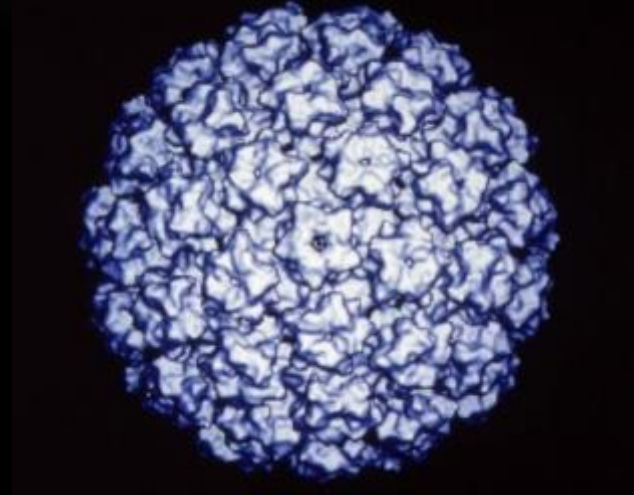
If these trends continue, the annual number of HPV-positive oropharyngeal cancers is expected to surpass the annual number of cervical cancers by 2020.

Evidence-Based HPV Prevention

HPV VACCINE

HPV VACCINES

- Recombinant L1 capsid proteins that form “virus-like” particles (VLP)
- Non-infectious and non-oncogenic
- Produce higher levels of neutralizing antibody than natural infection



HPV Virus-Like Particle



| Quadrivalent/HPV4 (Gardasil) | Name | Bivalent/HPV2 (Cervarix) |
|--|--------------------------|--|
| Merck | Manufacturer | GlaxoSmithKline |
| 6, 11, 16, 18 | Types | 16, 18 |
| Females: Anal, cervical, vaginal and vulvar precancer and cancer; Genital warts Males: Anal precancer and cancer; Genital warts | Indications | Females: Cervical precancer and cancer Males: Not approved for use in males |
| Hypersensitivity to yeast | Contraindications | Hypersensitivity to latex (latex only contained in pre-filled syringes, not single-dose vials) |
| 3 dose series: 0, 2, 6 months | Schedule (IM) | 3 dose series: 0, 1, 6 months |

HPV VACCINATION SCHEDULE

- ACIP Recommended schedule is 0, 1-2*, 6 months
 - Following the recommended schedule is preferred
- Minimum intervals
 - 4 weeks between doses 1 and 2
 - 12 weeks between doses 2 and 3
 - 24 weeks between doses 1 and 3
- Administer IM

HPV VACCINE SAFETY AND EFFICACY

- HPV Vaccine is SAFE
 - Safety studies findings for HPV vaccine similar to safety reviews of MCV4 and Tdap vaccines
- HPV Vaccine WORKS
 - High grade cervical lesions decline in Australia (80% of school aged girls vaccinated)
 - Prevalence of vaccine types declines by more than half in United States (33% of teens fully vaccinated)
- HPV Vaccine LASTS
 - Studies suggest that vaccine protection is long-lasting; no evidence of waning immunity

HPV 9-VALENT VACCINE

- Licensed by FDA December 10, 2014
 - Females 9-26 yrs, males 9-15 yrs
- L1 VLP vaccine, similar to quadrivalent HPV vaccine
- Targets 5 additional high-risk HPV types
 - 6,11,16,18,31,33,45,52,58
- Males 16-26 yrs- not part of BLA submitted in 2013

HPV 9-VALENT VACCINE

- Efficacy
 - ~97% protection against HPV 31, 33, 45, 52, 58- related outcomes
 - Similar protection against HPV 6, 11, 16, 18- related disease
- Non-inferior immunogenicity
 - For HPV 6, 11, 16, 18 compared with 4vHPV in 16–26 & 9–15 year olds
 - For all 9 HPV vaccine types in adolescent females and males compared to adult females and in adult males compared to adult females
- Concomitant use
 - No impact on immunogenicity and safety when 9vHPV administered concomitantly with meningococcal vaccine, Tdap vaccine

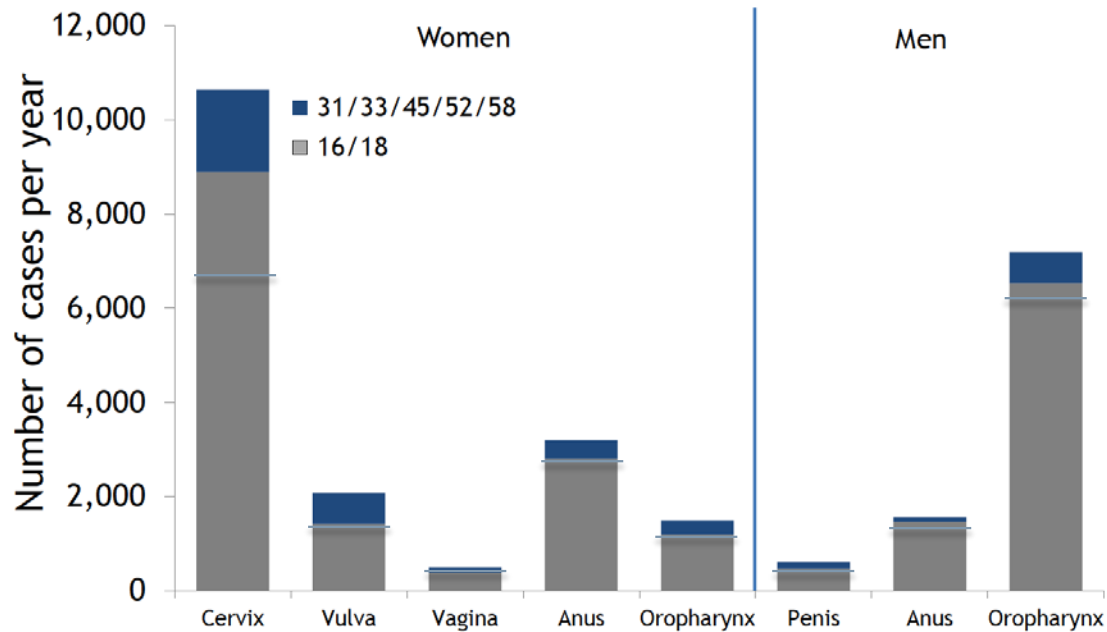
HPV 9-VALENT VACCINE

- Generally well tolerated in >15,000 recipients
 - Adverse event profile similar to 4vHPV across age, gender, race, ethnicity
 - More injection site-related swelling and erythema in females who received 9vHPV (most mild/moderate in intensity)
 - Lower frequency of adverse events in males compared to females (similar to 4vHPV)

HPV 9-VALENT VACCINE

9vHPV

Potential for additional cancer prevention in the U.S.



Brisson, October 2014 ACIP Presentation, based on: 1) Jemal JNCI 2013; 2) Saraiya, JNCI (under review)

HPV 9-VALENT VACCINE ACIP RECOMMENDATIONS

- Begin vaccination of males and females at 11 or 12 years. May be started at 9 years
- Vaccination is also recommended for females 13-26 years and males 13-21 years who have not been previously vaccinated or who have not completed 3-dose series
- Males 22-26 years *may* be vaccinated
- 4-valent and 9-valent vaccines are considered interchangeable for the purposes of completing a series of HPV vaccination
- FDA approval labeling versus ACIP recommendations

HPV VACCINE IMPACT

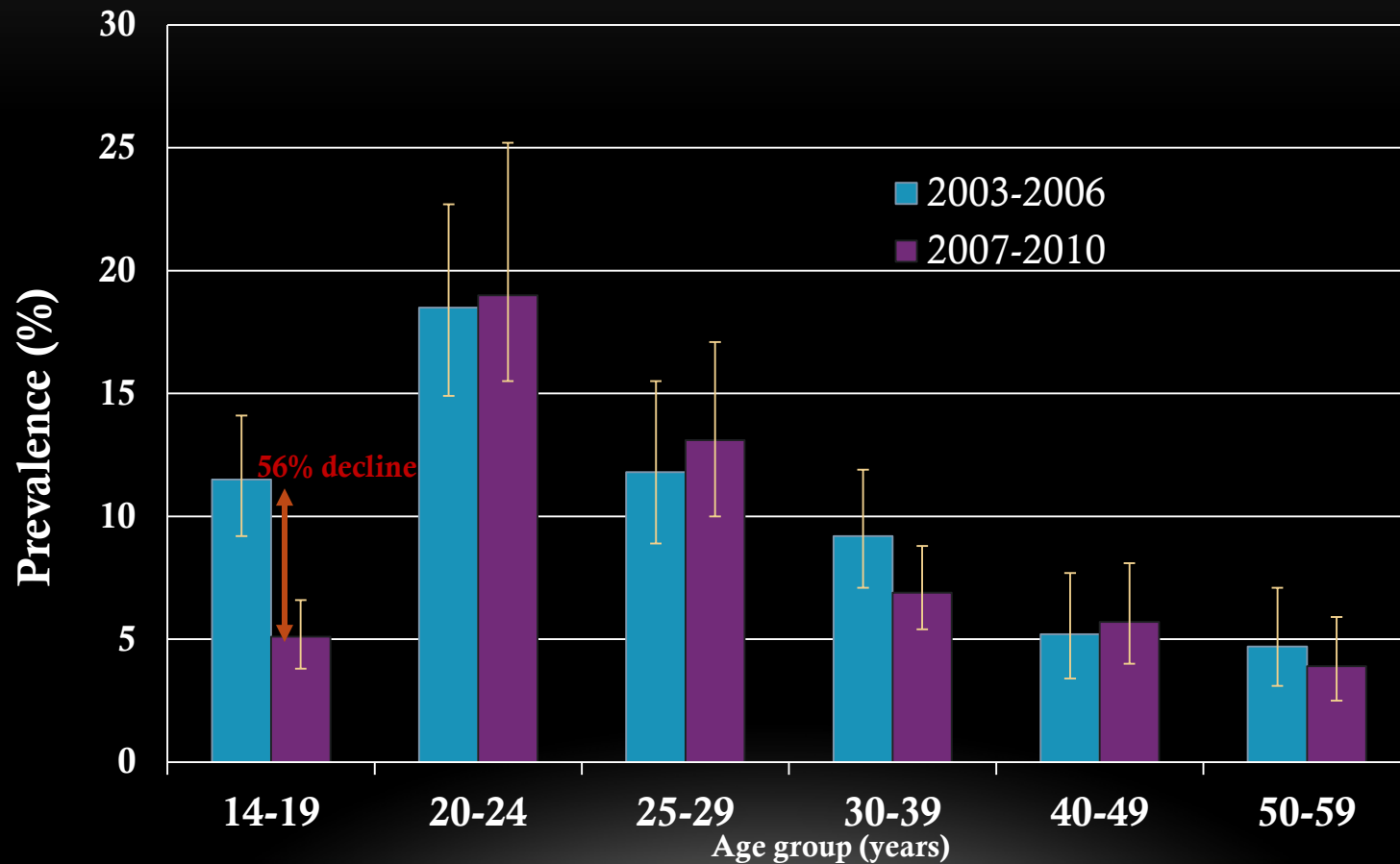
HPV VACCINE DURATION OF IMMUNITY

- Studies suggest that vaccine protection is long-lasting; no evidence of waning immunity
 - Available evidence indicates protection for at least 8-10 years
 - Multiple cohort studies are in progress to monitor the duration of immunity

MONITORING IMPACT OF HPV VACCINE PROGRAMS: HPV-ASSOCIATED OUTCOMES



PREVALENCE OF HPV 6, 11, 16, 18* IN CERVICOVAGINAL SWABS, BY AGE GROUP NHANES, 2003-2006 AND 2007-2010, U.S.

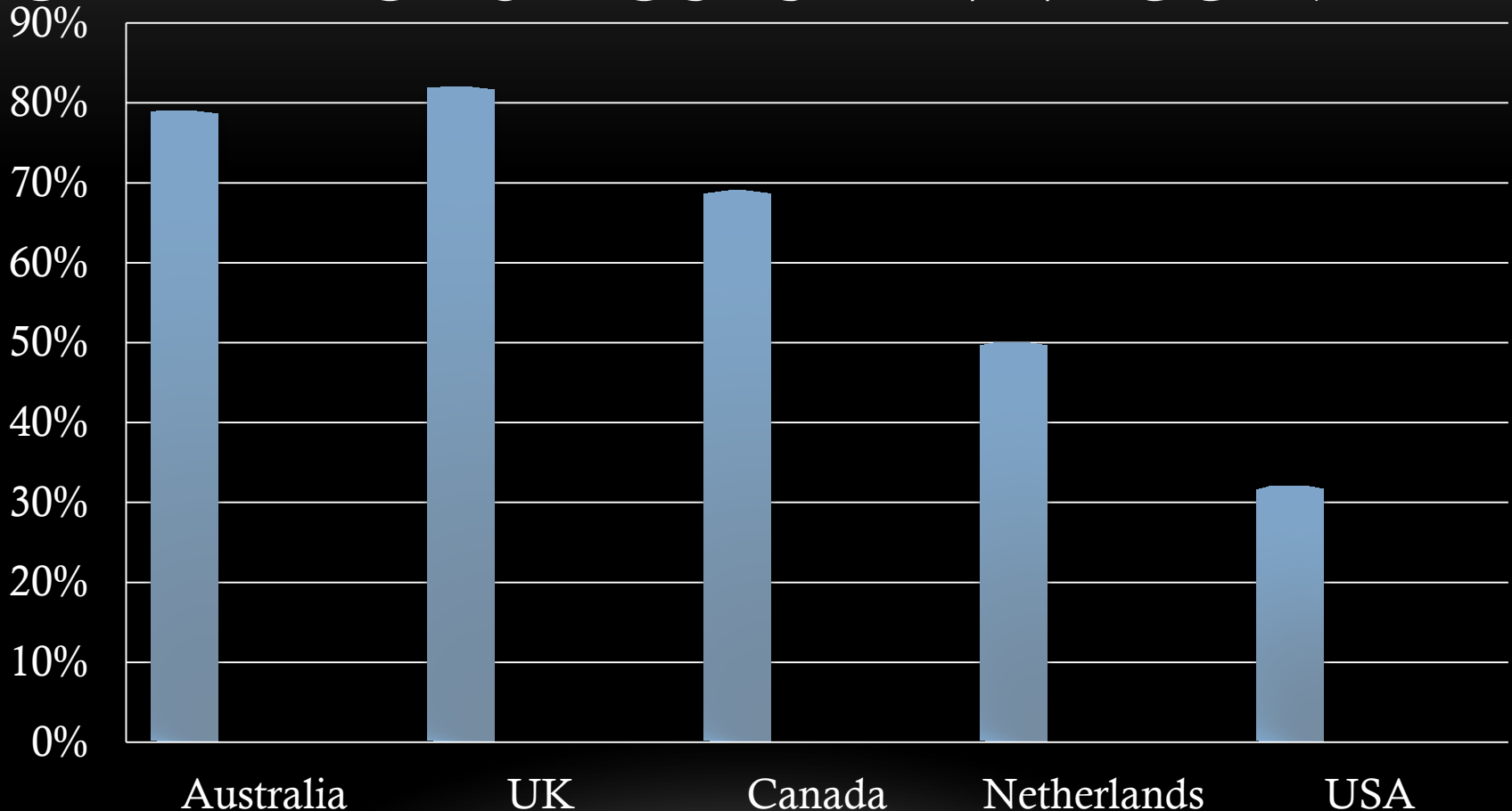


*weighted prevalence

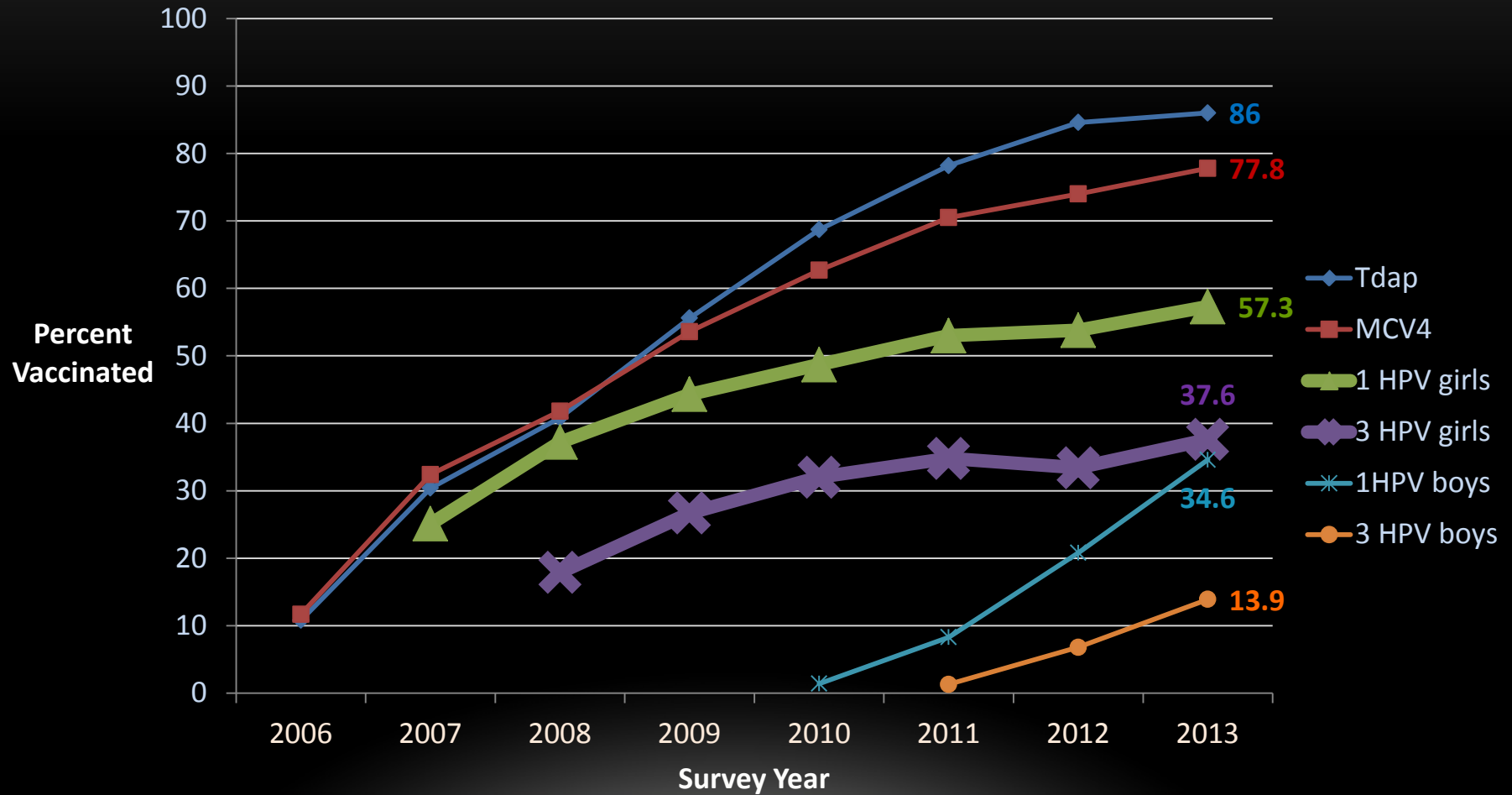
Markowitz, et al. Reduction in HPV prevalence among young women following HPV vaccine introduction in the United States, NHANES, 2003-2010. *J Infect Dis* 2103

HPV VACCINE COVERAGE

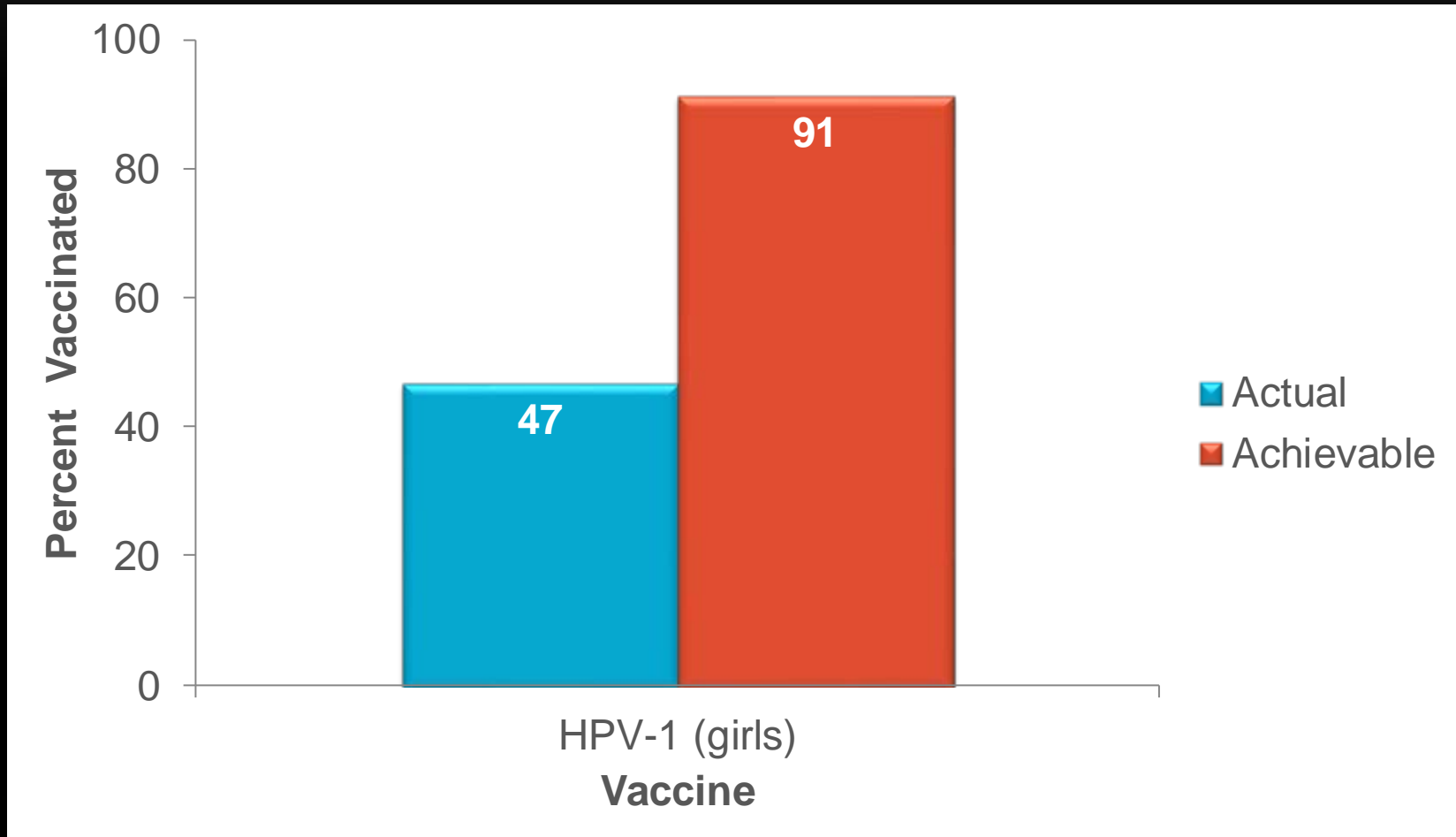
US BEHIND OTHER NATIONS IN UPTAKE OF 3 DOSES HPV VACCINE



ADOLESCENT VACCINATION COVERAGE UNITED STATES, 2006-2013

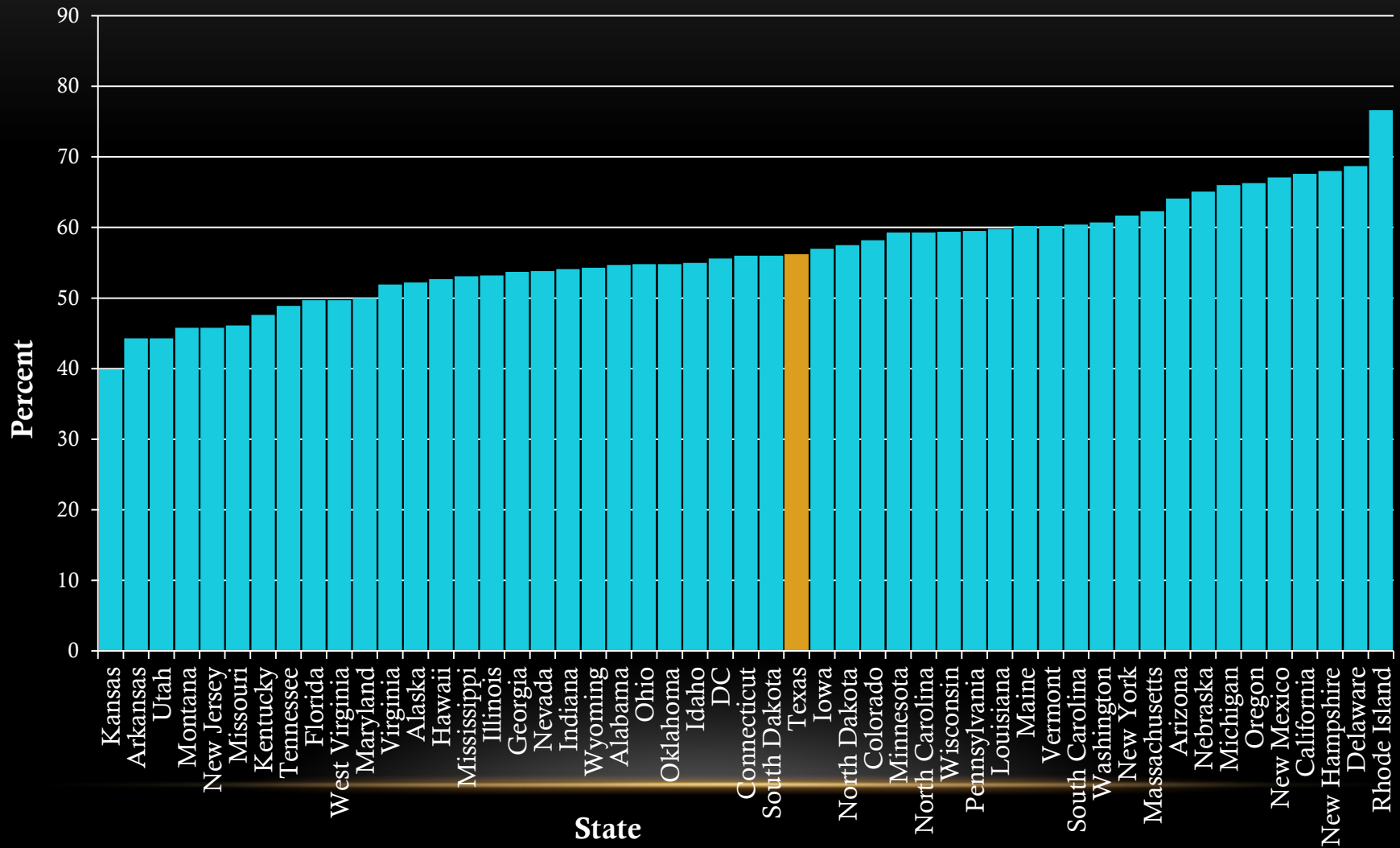


IMPACT OF ELIMINATING MISSED OPPORTUNITIES BY AGE 13 YEARS IN GIRLS BORN IN 2000

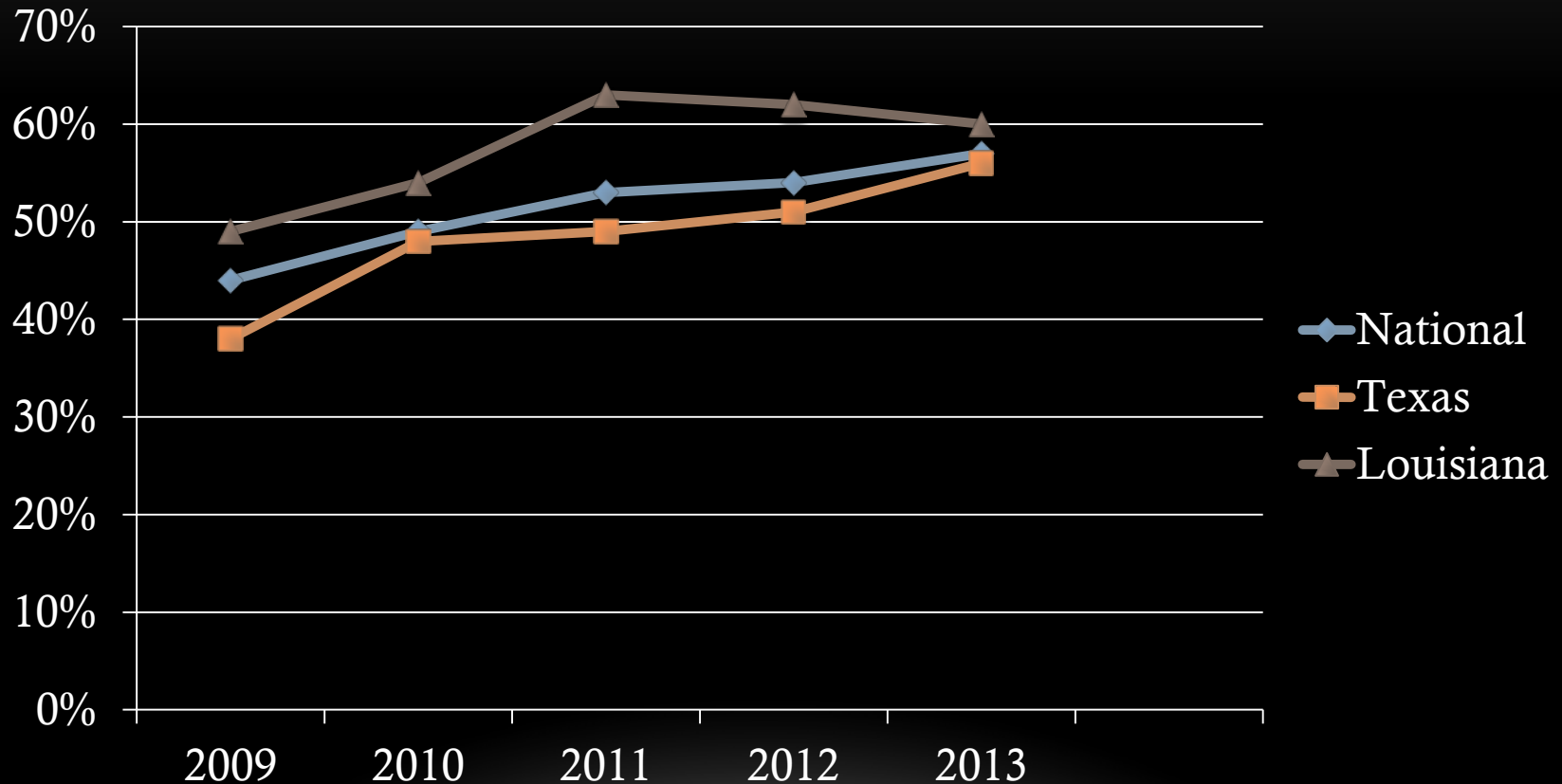


Missed opportunity: Healthcare encounter when some, but not all ACIP-recommended vaccines are given. HPV-1: Receipt of at least one dose of HPV.

HPV VACCINE SERIES INITIATION GIRLS 13-17 YEARS, BY STATE, 2013

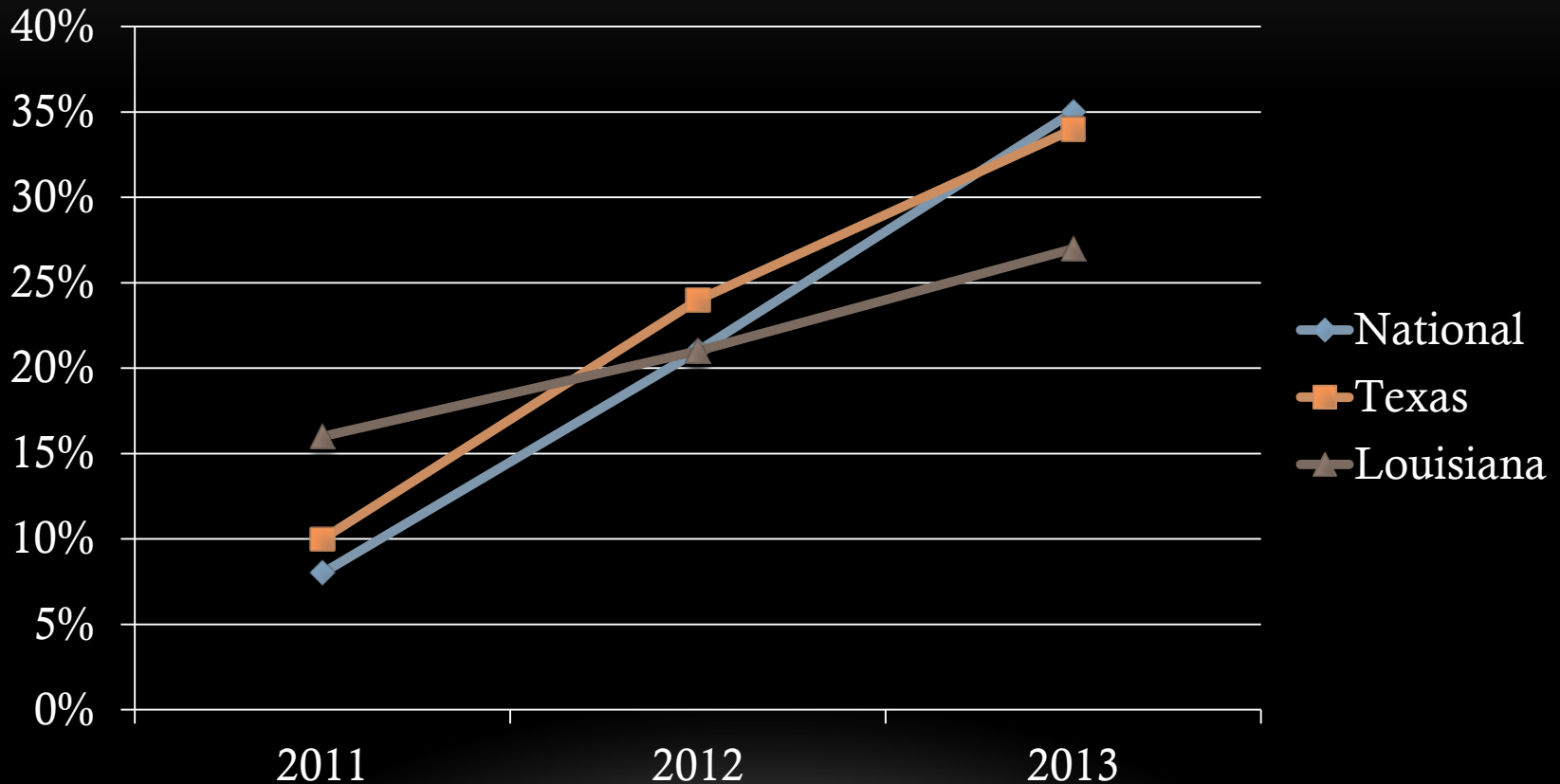


HPV VACCINATION 1 OR MORE DOSES- FEMALES



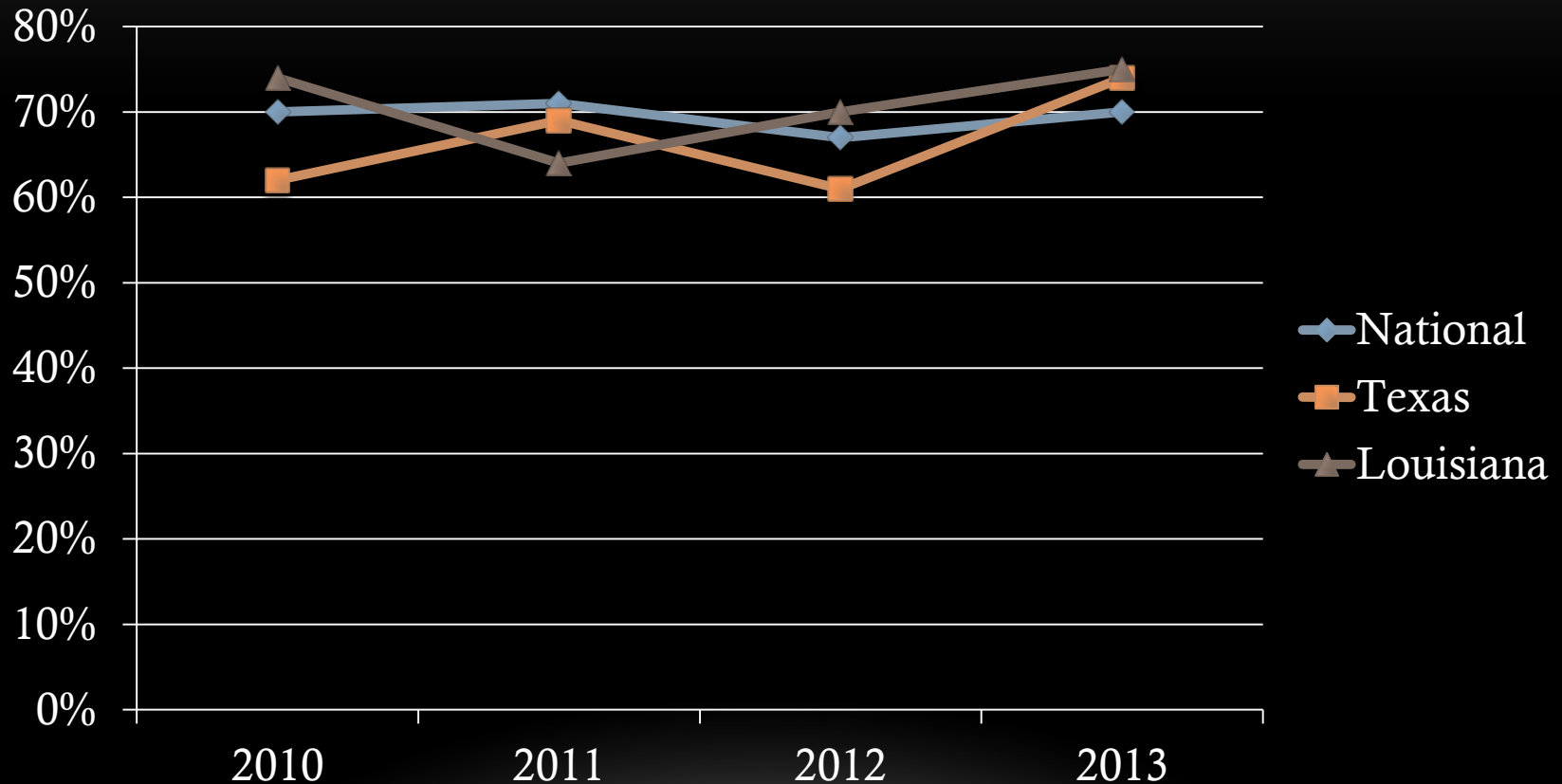
Source: NIS-Teen

HPV VACCINATION 1 OR MORE DOSES- MALES



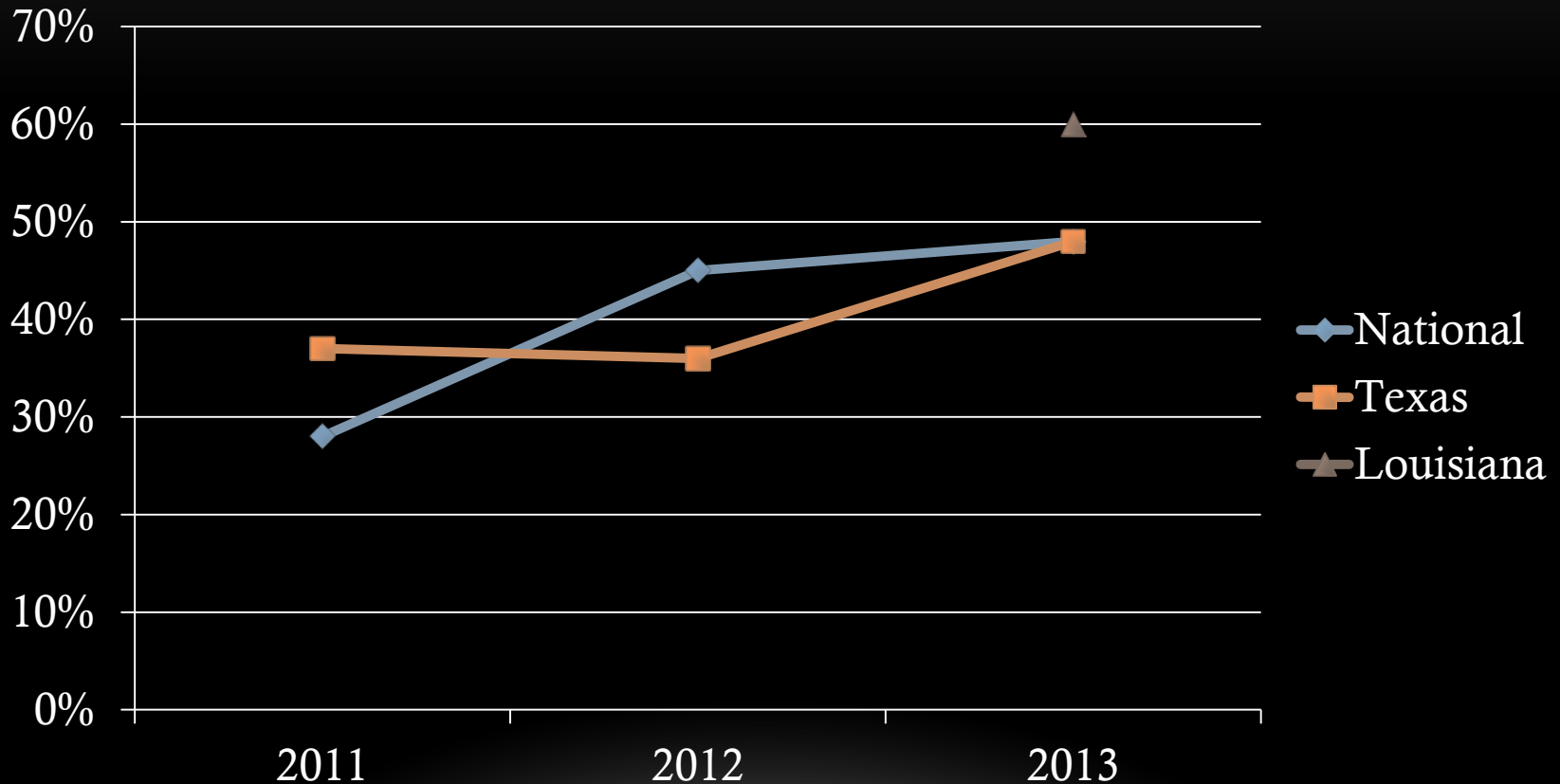
Source: NIS-Teen

HPV VACCINATION SERIES COMPLETION RATE- FEMALES



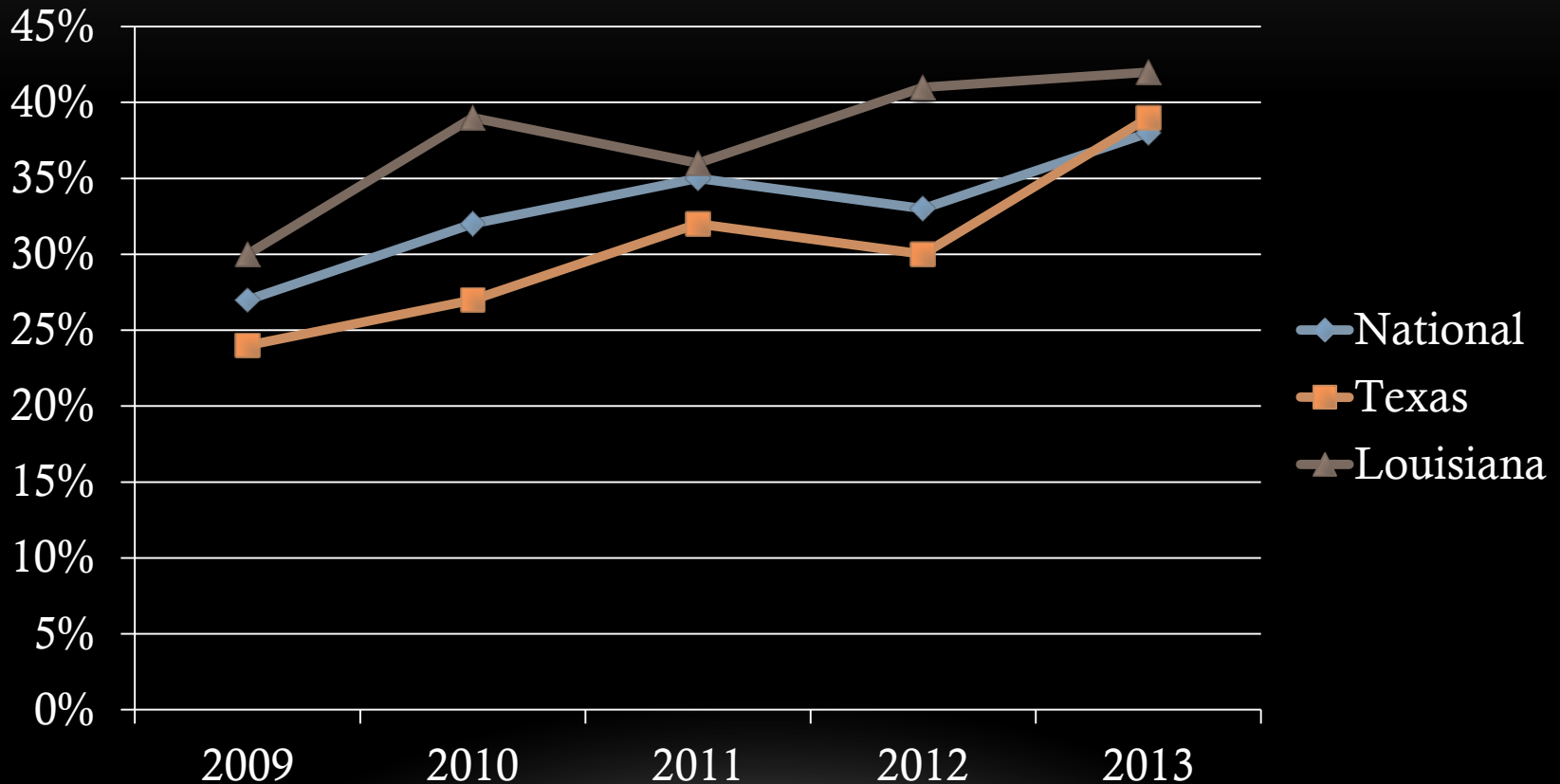
Source: NIS-Teen

HPV VACCINATION SERIES COMPLETION- MALES



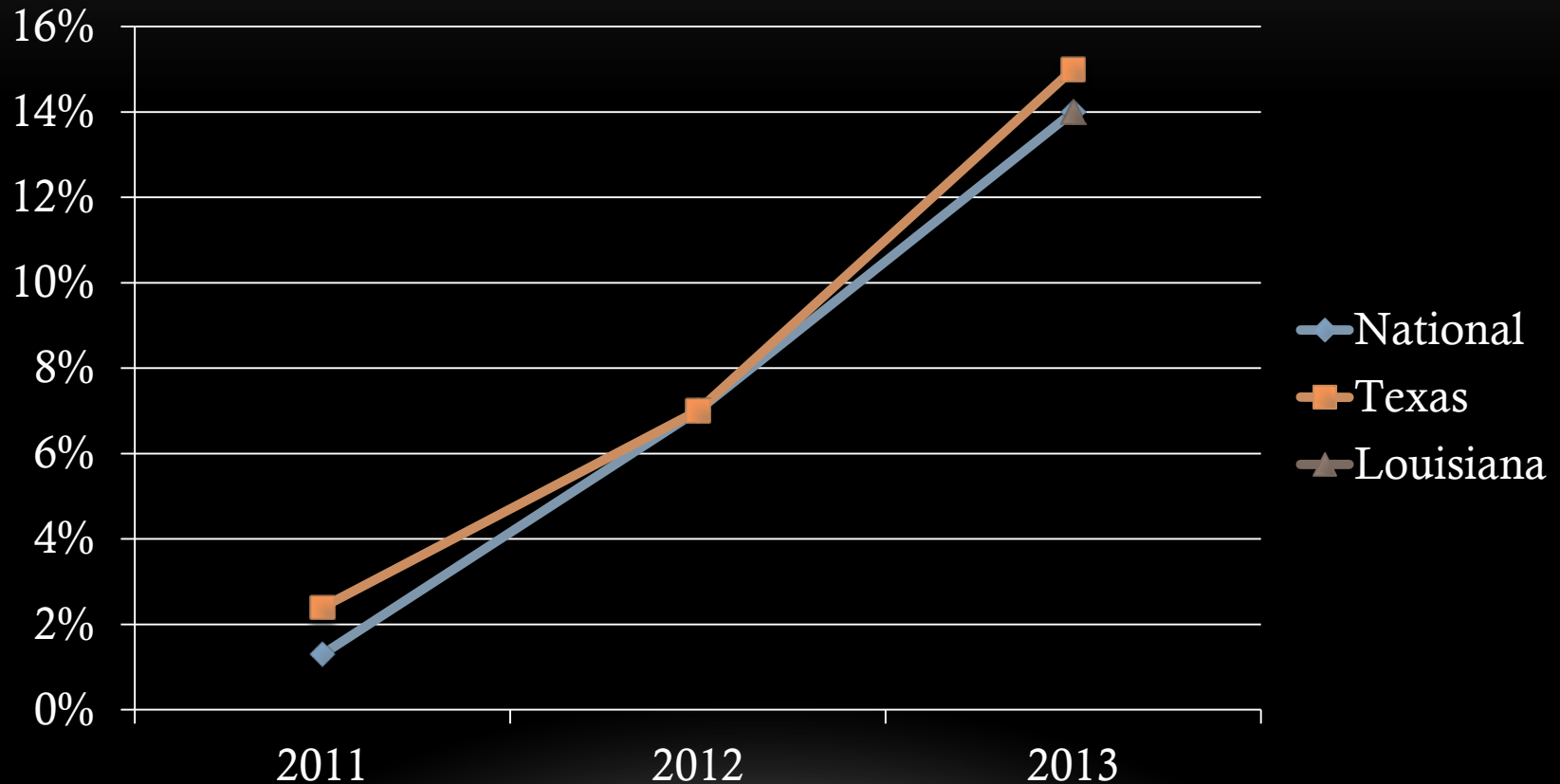
Source: NIS-Teen

HPV VACCINATION 3 OR MORE DOSES- FEMALES



Source: NIS-Teen

HPV VACCINATION 3 OR MORE DOSES- MALES



Source: NIS-Teen

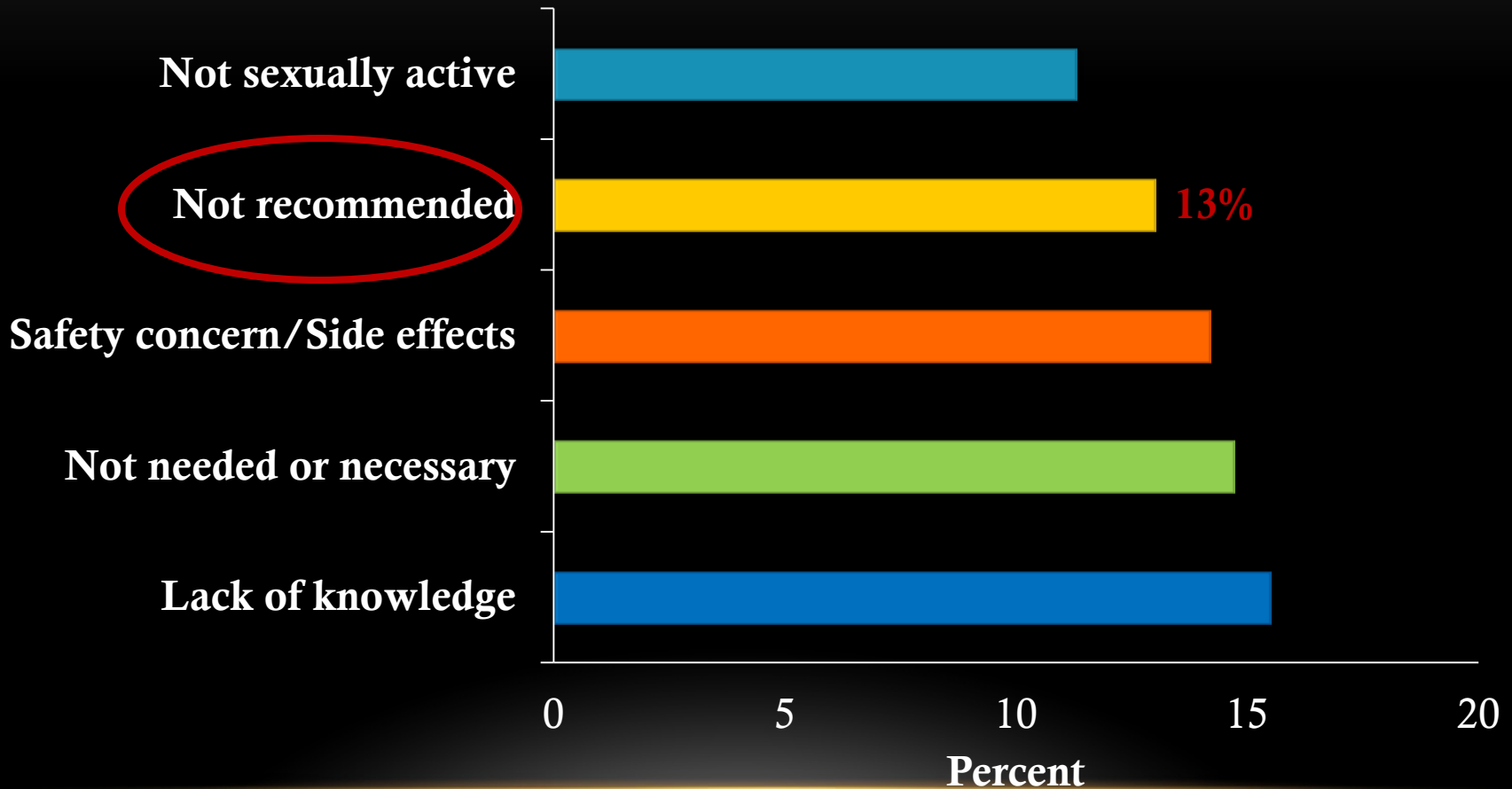
Talking about HPV vaccine

FRAMING THE CONVERSATION

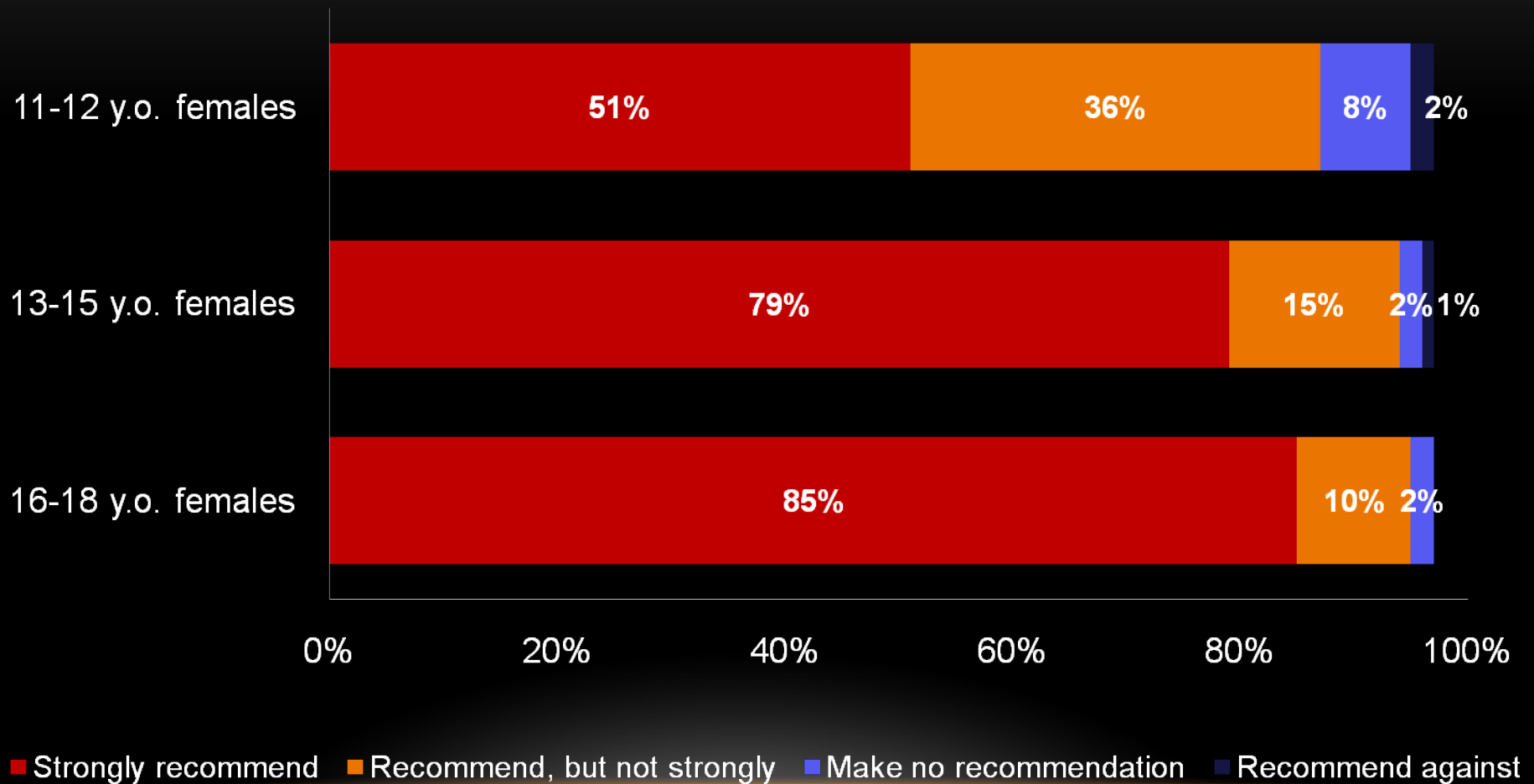
HPV VACCINE COMMUNICATIONS DURING THE HEALTHCARE ENCOUNTER

- HPV vaccine is often presented as 'optional' whereas other adolescent vaccines are recommended
- Some expressed mixed or negative opinions about the 'new vaccine' and concerns over safety/efficacy
- When parents expressed reluctance, providers were hesitant to engage in discussion
- Some providers shared parents' views that teen was not at risk for HPV and could delay vaccination until older

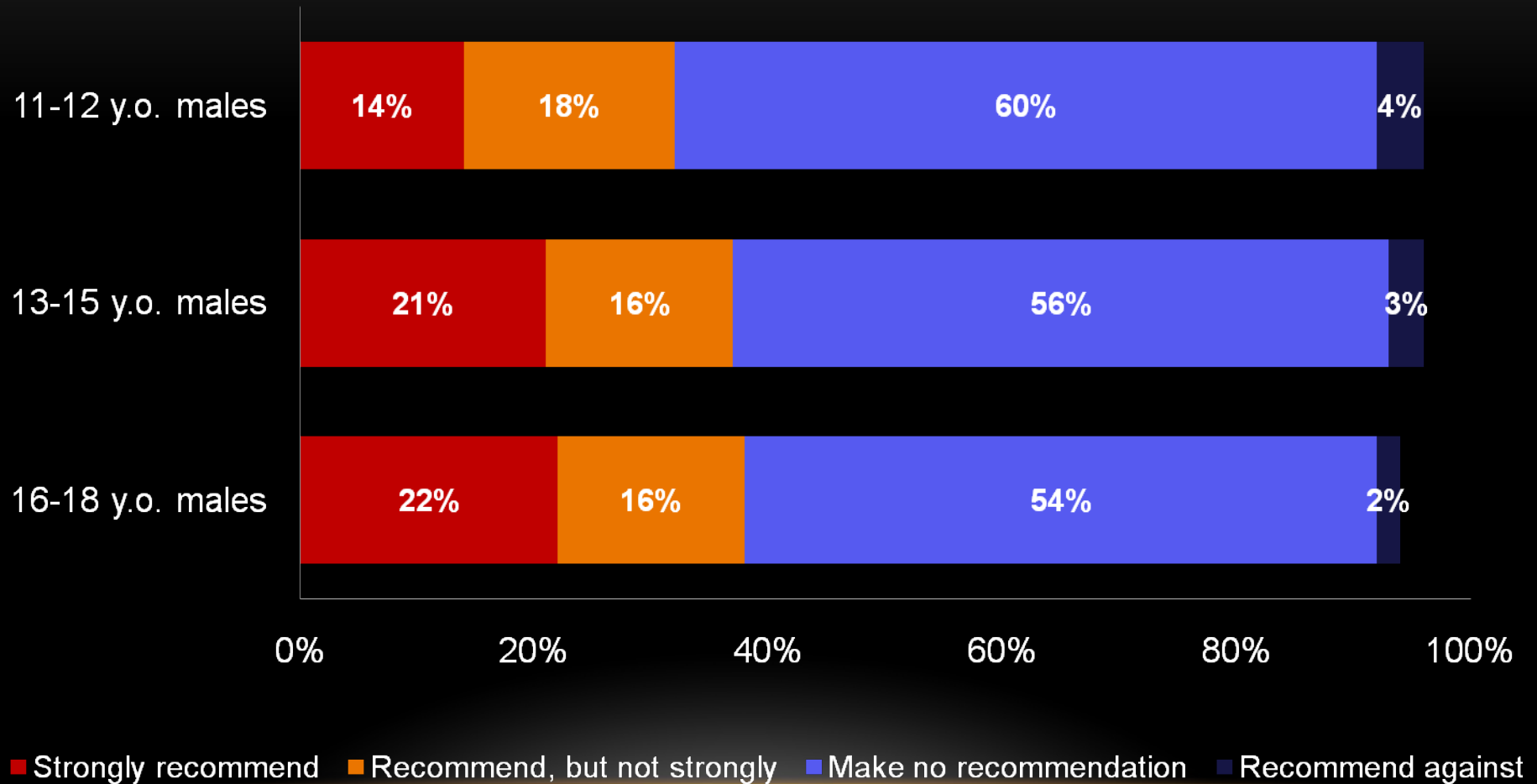
TOP 5 REASONS FOR NOT VACCINATING DAUGHTER, AMONG PARENTS WITH NO INTENTION TO VACCINATE IN THE NEXT 12 MONTHS, NIS-TEEN 2013



CURRENT STRENGTH OF RECOMMENDATION IN FEMALES (PEDS/FM COMBINED, N=609)

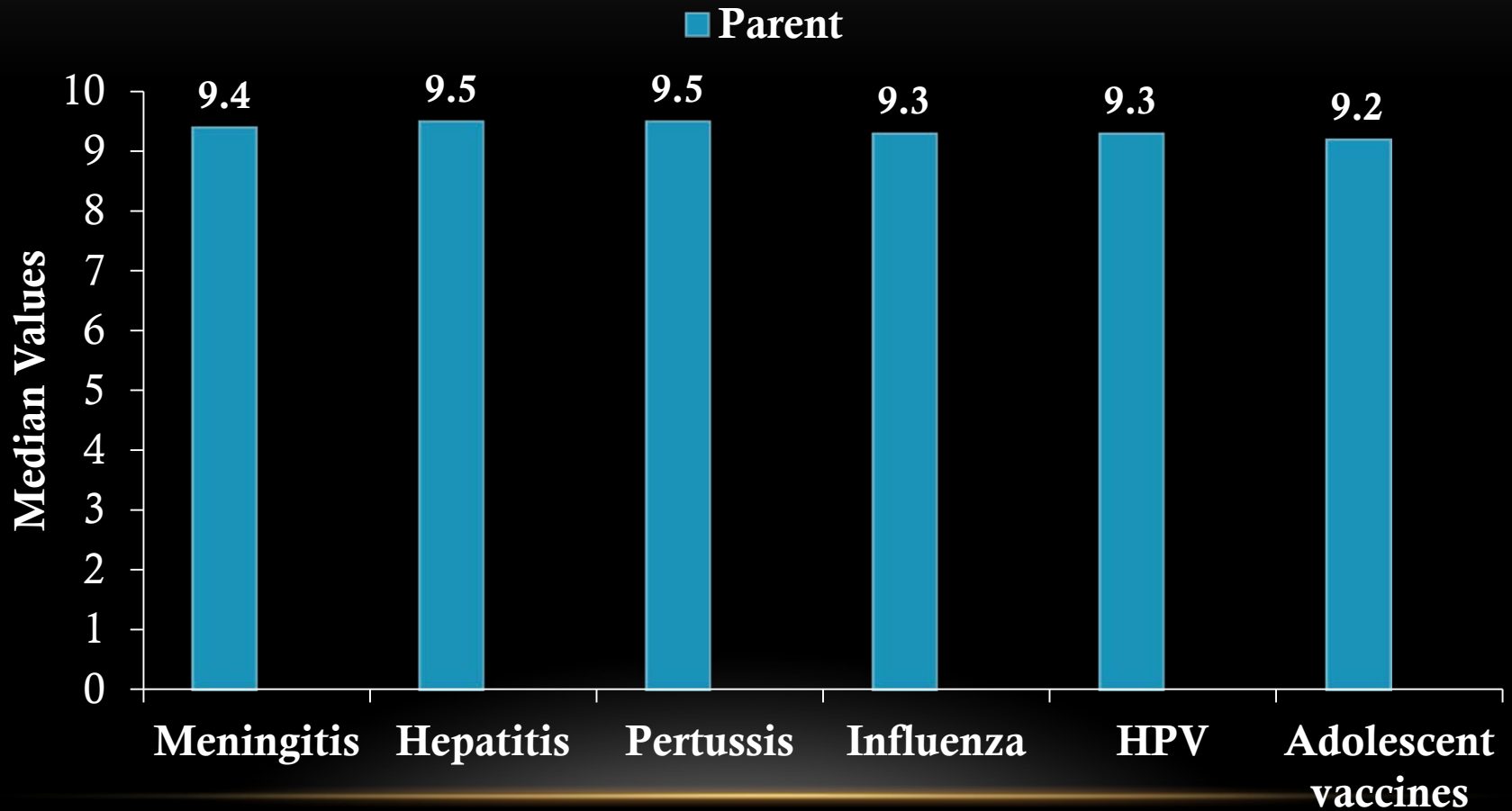


CURRENT STRENGTH OF RECOMMENDATION MALES (PEDS/FM COMBINED, N=609)

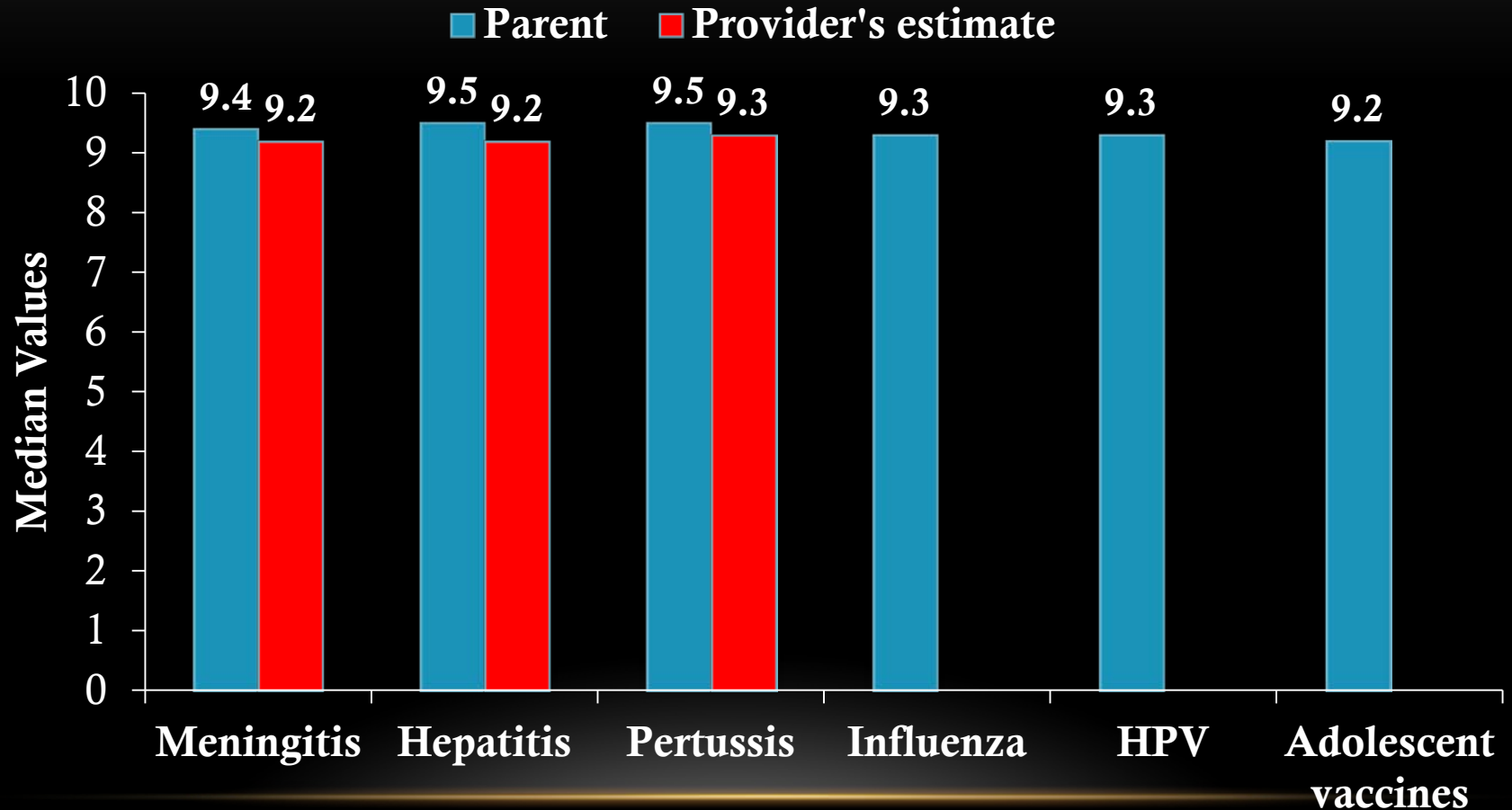


Allison, et al; Acad Pediatr. 2013

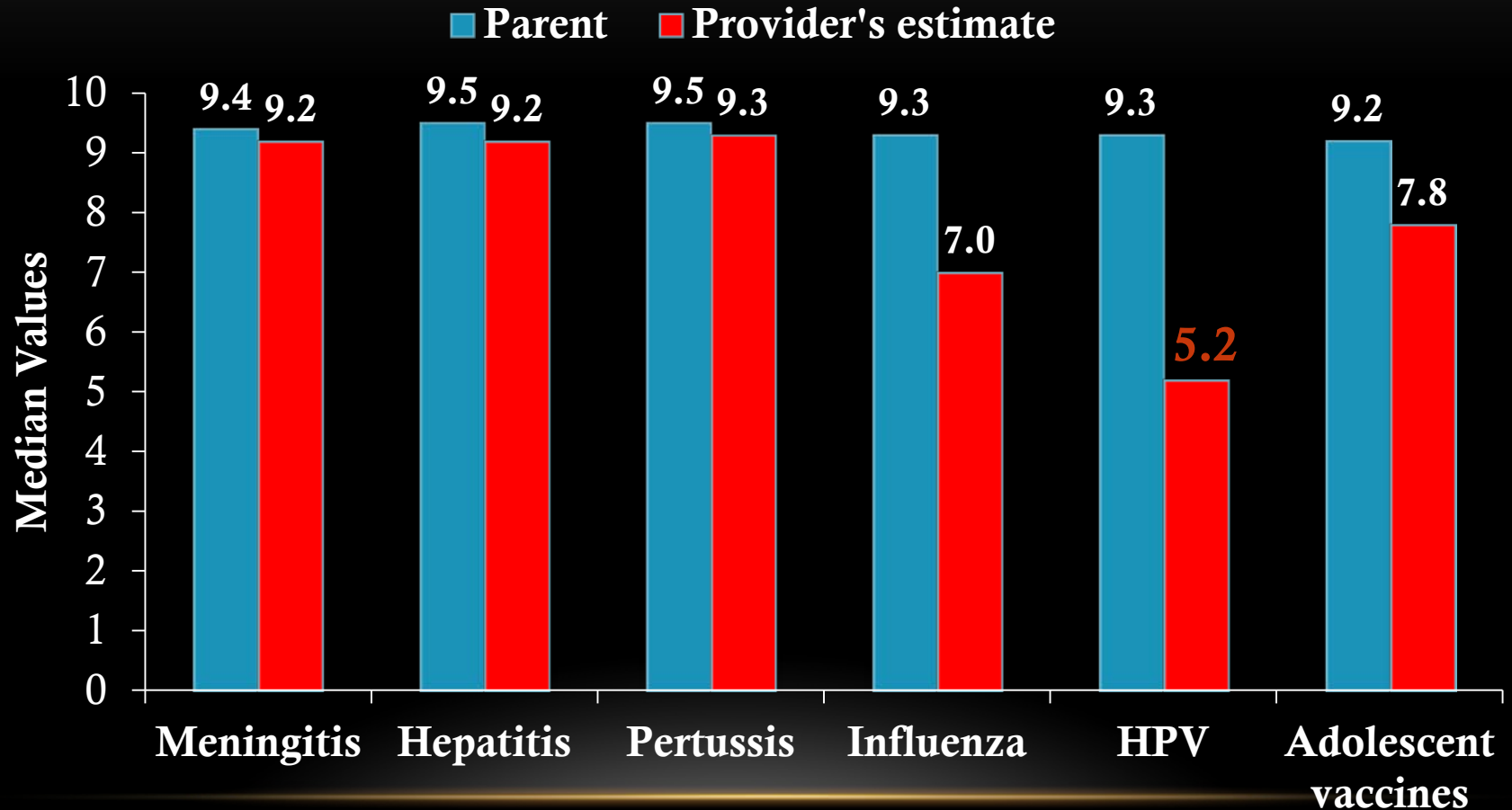
VALUE PARENTS PLACE ON VACCINES



PROVIDER'S ESTIMATES OF THE VALUE PARENTS PLACE ON VACCINES



CLINICIANS UNDERESTIMATE THE VALUE PARENTS PLACE ON HPV VACCINE



IS SHE REALLY TOO YOUNG? TAKE 1 (A CONVERSATION YOU MAY BE FAMILIAR WITH)

Provider: Meghan is due for some shots today: Tdap and the meningococcal vaccine. There is also the HPV vaccine...

Parent: Why does she need an HPV vaccine? She's only 11!

Provider: We want to make sure she gets the shots before she becomes sexually active.

Parent: Well I can assure you Meghan is not like other girls- she's a long way off from that!

Provider: We can certainly wait if that would make you feel more comfortable.

COMMUNICATION STRATEGIES

The Architecture of Provider-Parent Vaccine Discussions at Health Supervision Visits

Presumptive: (74% of providers)

“Well, we have to do some shots.”

“So, we’ ll do 3 shots and the oral vaccine today...”

26% of parents resisted vaccines

Participatory: (26% of providers)

“Are we going to do shots today?”

“What do you want to do about shots?”

“You’ re still declining shots?”

83% of parents resisted vaccines

Provider does not pursue:

“Okay”

“We could split them up”

“We could do them when you come back in 2 months”

Provider pursues vaccine recommendation: (50%)

“He really needs these shots”

“Whooping cough can be a killer in the kid under 1”

47% of parents who were resistant agree to vaccines



WHAT’S KNOWN ON THIS SUBJECT: An increasing number of parents have concerns about childhood vaccines. Parents consistently cite their child’s provider as influential in their vaccine decision-making. Little is known about how providers communicate with parents about vaccines and which communication strategies are important.



WHAT THIS STUDY ADDS: How providers initiate the vaccine recommendation at health supervision visits appears to be an important determinant of parent resistance. Also, when providers pursue their original vaccine recommendations in the face of parental resistance, many parents subsequently agree to vaccination.

Pediatrics 2013

AUTHORS: Douglas J. Opel, MD, MPH, John Heritage, PhD, James A. Taylor, MD, Rita Mangione-Smith, MD, MPH, Halle Showalter Salas, MPhil, Victoria DeVere, BS, Chuan Zhou, PhD, and Jeffrey D. Robinson, PhD

FRAMING THE CONVERSATION

BUNDLE THEM UP!

- Successful recommendations group all of the adolescent vaccines
 - Recommend HPV vaccine the *same way* and on the *same day* you recommend Tdap and meningococcal vaccines.
- A strong recommendation from you is the main reason parents decide to vaccinate
 - Many parents responded that they trusted their child's doctor and would get the vaccine for their child as long as they received a recommendation from the doctor

CLINICIANS CAN GIVE A STRONG HPV VACCINE
RECOMMENDATION BY SAYING:

*Your child needs three shots today: meningococcal vaccine,
HPV vaccine,
and Tdap vaccine.*

*Your preteen needs three vaccines to protect against
meningitis, HPV cancers, and pertussis.*

QUESTIONS = NEEDS REASSURANCE

- Many parents are accepting of this bundled recommendation
 - Some parents may be interested in vaccinating, yet still have questions

Some parents will ask questions, meaning they need additional reassurance from YOU, the clinician they trust with their child's health care

IF PARENTS ASK WHY HPV VACCINE IS IMPORTANT, TRY SAYING:

HPV vaccine is very important because it prevents cancer.

I want your child to be protected from cancer.

That's why I'm recommending that your daughter/son receive the first dose of the HPV vaccine series today.

BUT SHE'S TOO YOUNG!

- Parents might believe their child won't be exposed to HPV because they aren't sexually active or may not be for a long time
 - In focus groups, some moms couldn't understand how their child could become infected even if they waited until marriage to have sex
 - Some moms stated that they didn't think HPV infection was very common because they had never heard that it was or didn't know anyone who had an HPV infection or HPV disease

IF PARENTS DON'T THINK THAT THEIR CHILD WILL BE EXPOSED, TRY SAYING:

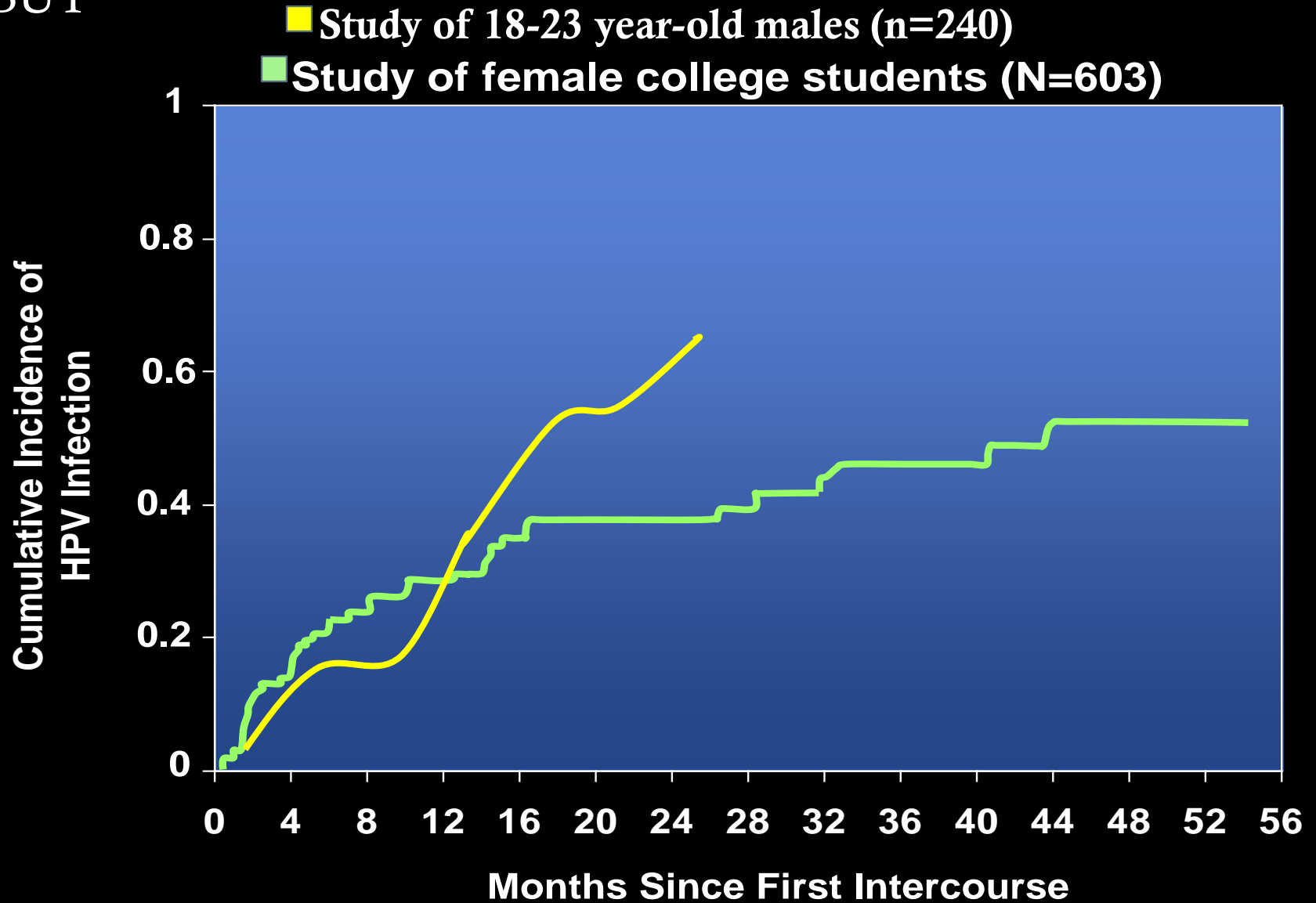
HPV is so common that almost everyone will be infected at some point. It is estimated that 79 million Americans are currently infected with 14 million new HPV infections each year.

Most people infected will never know. Even if your child waits until marriage to have sex, or only has one partner in the future, he/she could still be exposed, if their partner has already been exposed.

WHY AT 11 OR 12 YEARS OLD?

- Parents want a concrete reason why 11-12 year olds should receive HPV vaccine
 - In audience research with moms, almost all respondents were unaware of the correct age range the vaccine was recommended
 - Respondents also missed the concept of vaccinating before sexual activity

RAPID ACQUISITION OF HPV IN FOLLOWING SEXUAL DEBUT



From Winer RL, Lee S-K, Hughes JP, Adam DE, Kiviat NB, Koutsky LA. Genital human papillomavirus infection: incidence and risk factors in a cohort of female university students. *Am J Epidemiol.* 2003;157:218–226. Reprinted with the permission of Oxford University Press.

HPV IS FOUND IN VIRGINS

- Study examined the frequency of vaginal HPV and the association with non-coital sexual behavior in longitudinally followed cohort of adolescent women without prior vaginal intercourse
- HPV was detected in 46% of women prior to first vaginal sex
- 70% of these women reported non-coital behaviors that may in part explain genital transmission

IF PARENTS ASK WHY HPV VACCINE IS GIVEN AT AGES 11 OR 12 YEARS, TRY SAYING:

We don't wait until exposure occurs to give any other routinely recommended vaccine. We want your child to be protected before they are at risk for exposure to HPV infection.

HPV vaccine produces a more robust immune response in preteens than in older teens.

That's why it is so important to start the shots now and finish them in the next 6 months.

A GREEN LIGHT FOR SEXUAL ACTIVITY?

- Parents may be concerned that vaccinating may be perceived by the child as permission to have sex
 - In focus groups, some parents expressed concern that in getting HPV vaccine for their child, they would be giving their child permission to have sex
 - This was one of the top four reasons respondents gave when asked why they would not vaccinate their daughter
 - A few parents expressed that while they wanted their child to “wait to have sex” they understood that might not be the case

RECEIPT OF HPV VACCINE DOES NOT INCREASE SEXUAL ACTIVITY OR DECREASE AGE OF SEXUAL DEBUT

- Kaiser Permanente Center for Health Research
- 1,398 girls who were 11 or 12 in 2006, 30% of whom were vaccinated, followed through 2010
- No difference in markers of sexual activity, including
 - Pregnancies
 - Counseling on contraceptives
 - Testing for, or diagnoses of, sexually transmitted infections

IF PARENTS ARE CONCERNED THAT HPV
VACCINE WILL BE PERCEIVED BY THEIR CHILD
AS PERMISSION TO HAVE SEX, TRY SAYING:

*Multiple research studies have shown that getting the HPV vaccine
does not make kids more likely to be sexually active.*

*These studies have also shown that getting the HPV vaccine does
not make kids more likely to start having sex a younger age.*

WOULD YOU GIVE IT TO YOUR CHILD?

- Emphasizing your personal belief in the importance of HPV vaccine helps parents feel secure in their decision
 - Some respondents in focus groups stated that they would feel more comfortable knowing that the doctor had vaccinated their own child or was planning to (if the child was <11)

IF PARENTS ASK IF YOU THINK HPV VACCINE IS IMPORTANT, TRY SAYING:

I strongly believe in the importance of this cancer-preventing vaccine.

*I have given HPV vaccine to my son / daughter (or
grandchild / niece / nephew / friend's children).*

*Experts, such as the American Academy of Pediatrics, cancer doctors,
and the CDC, also agree that getting the HPV vaccine is very
important for your child.*

TEXAS PEDIATRIC SOCIETY ACTIVITIES

- Collaboration with MD Anderson Cancer Center “Cancer Moonshots”
 - Participation in CDC Quality Improvement grant to raise HPV vaccination rates
 - Awarded to AAP and made available to AAP Districts and Chapters
 - Creation of enduring online CME for Texas Medical Association re HPV disease and prevention
-

CONCLUSIONS

- HPV is exceedingly common and most of population gets infected
- HPV causes cancer in both males and females
- HPV vaccination is recommended for preteens to protect against a likely infection which can lead to preventable cancers
- Providers must improve performance in vaccination to fulfill the mission of preventing these cancers

HPV Vaccination = Cancer Prevention!