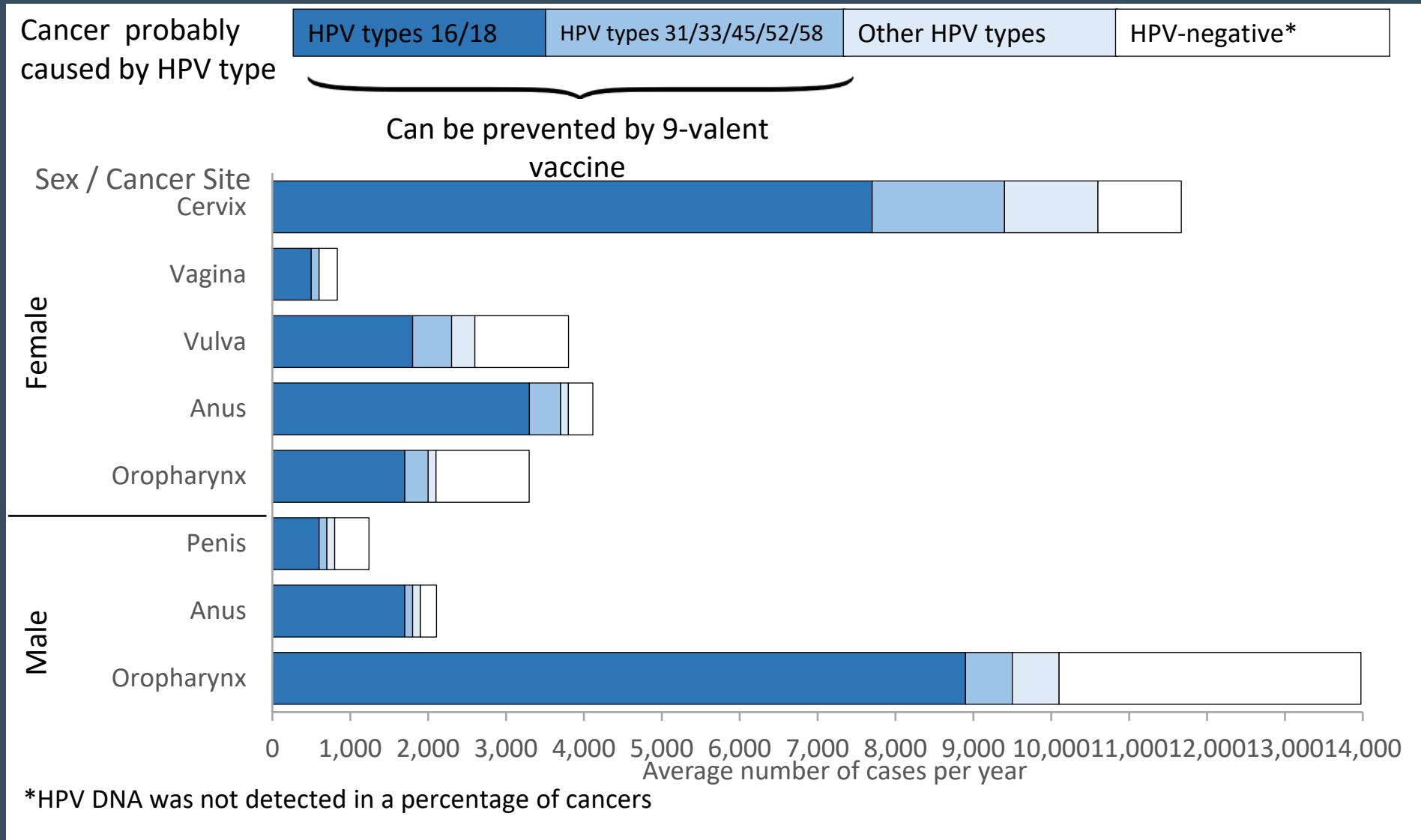


Developing an Action Plan for Your Practice to Increase Vaccination and Prevent HPV-related Cancers

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General Pediatrics
Cleveland Clinic Children's



Cancers Attributable to HPV

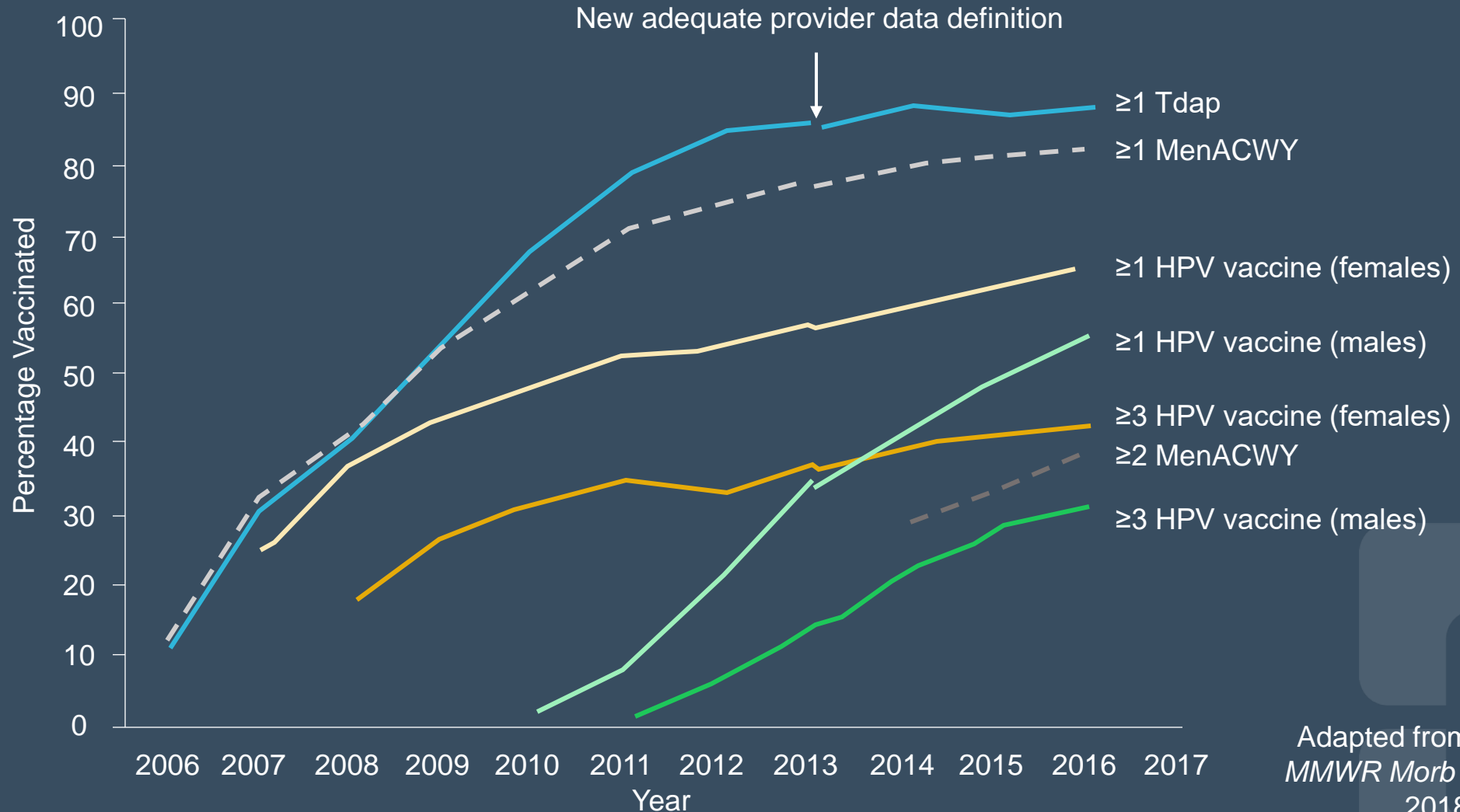


ACIP Recommendations

Population	Recommended Number of HPV Vaccine Doses	Recommended Interval Between Doses
Persons initiating HPV vaccination between ages 9-14 years (except immunocompromised persons)	2	0, 6-12 months (minimum interval of 5 months)
Persons initiating HPV vaccination between ages 15-26 years Immunocompromised persons initiating HPV vaccination between 9-26 years Catch-up HPV vaccination for persons aged 27-45 years (based on shared clinical-decision making)	3	0, 1-2, 6 months (minimum interval of 4 weeks between dose 1 and 2; 12 weeks between dose 2 and 3; and 5 months between dose 1 and 3)

Contraindications: known allergy to vaccine component or yeast.

Vaccination Coverage in Adolescents: HPV and Recommended Vaccines



Adapted from Walker TY et al.
MMWR Morb Mortal Wkly Rep.
2018;67(33):909-917.

HPV Vaccination Rates, 2017

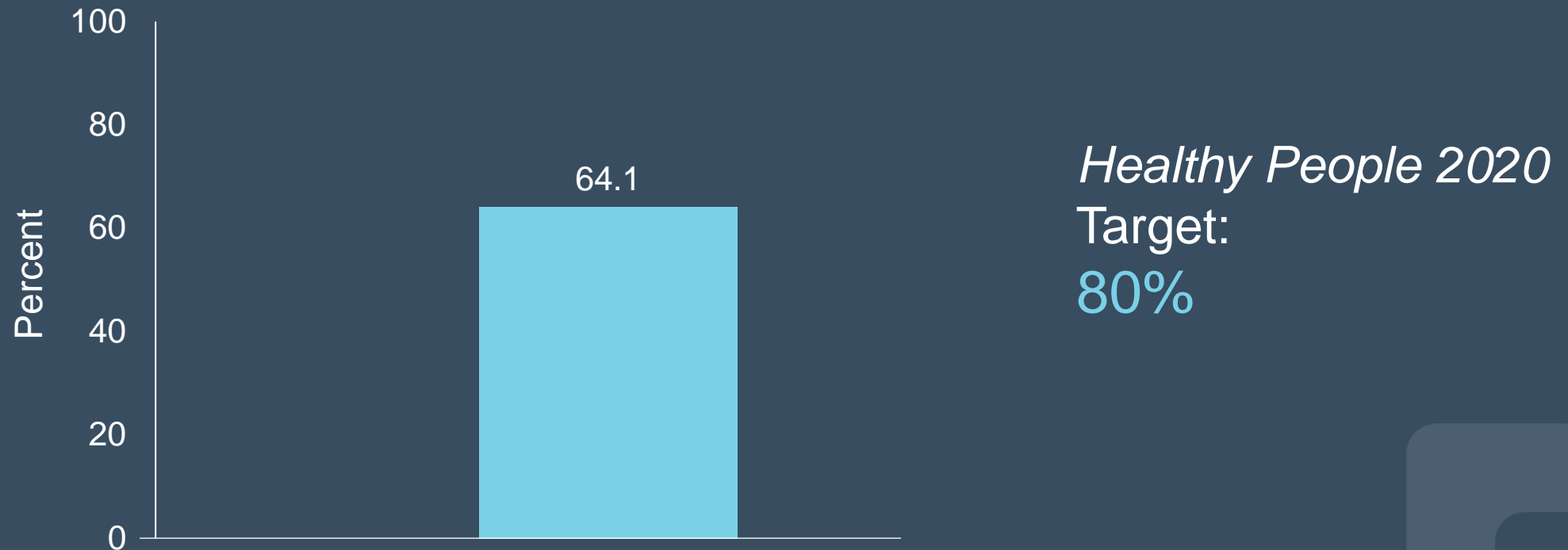
National Immunization Survey-Teen

	Age (yrs), % (95% CI)					Total, % (95% CI)	
Vaccine	13 (n=4,283)	14 (n=4,429)	15 (n=4,212)	16 (n=4,218)	17 (n=3,807)	2017 (n=20,949)	2016 (n=20,475)
HPV vaccine-females							
≥1 dose	64.5 (60.5-68.3)	67.8 (63.8-71.6)	67.2 (63.4-70.9)	71.5 (67.8-75.0)	72.0 (68.1-75.6)	68.6 (66.9-70.2)	65.1 (63.3-66.8)
Up-to-date*	43.7 (39.6-47.8)	52.7 (48.3-57.1)	53.3 (49.1-57.5)	57.5 (53.3-61.5)	58.7 (54.2-63.1)	53.1 (51.2-55.0)	49.5 (47.6-51.4)
HPV vaccine-males							
≥1 dose	57.1 (53.1-61.0)	62.4 (59.1-65.6)	65.7 (61.9-69.3)	63.4 (59.7-67.0)	64.3 (60.6-67.9)	62.6 (60.9-64.2)	56.0 (54.3-57.7)
Up-to-date*	34.4 (30.8-38.2)	44.1 (40.6-47.6)	48.1 (44.1-52.2)	48.2 (44.3-52.1)	46.4 (42.5-50.4)	44.3 (42.6-46.0)	37.5 (35.8-39.2)

*Includes those with ≥3 doses, and those with 2 doses when the first HPV vaccine dose was initiated at age <15 years and at least 5 months minus 4 days elapsed between the first and second dose.

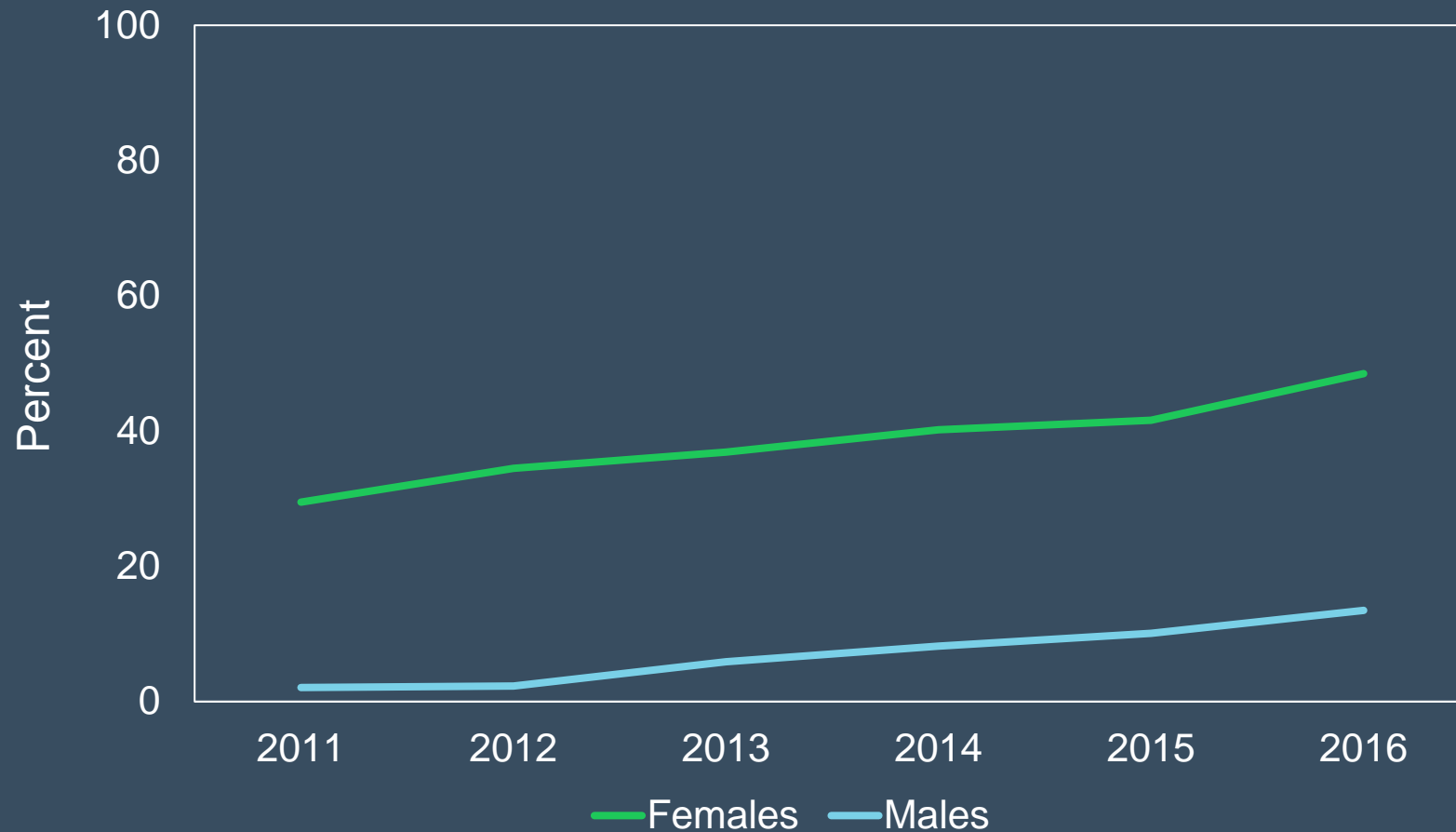
HPV Vaccination Rates, 2017 (Ohio)

≥ 1 HPV vaccination coverage among male and female adolescents 13-17 years



HPV Vaccination Rates: Ages 19-26 Years

National Health Interview Survey, 2016



Cleveland Clinic Vaccination Rates

2 doses of HPV vaccine by 13 years of age

	Percent Vaccinated	Percent Vaccinated: 12-month High
All	29.9% (n=5130)	31.2% (n=5073)
General Pediatrics	29.8% (n=4432)	31.1% (n=4367)
Family Medicine	31.1% (n=553)	37.7% (n=510)

Parental Barriers to Vaccination

- Hesitancy and refusal
 - Parents may support HPV vaccination and recognize its role as a preventive measure, BUT
 - Associate vaccination with the onset of sexual activity → delays in vaccination
- Lack of knowledge
- Misconceptions

“I mean I don’t see a benefit, you know, unless... your daughter at 12 years is sexually active.”

Top Reasons Parents Not Likely to Vaccinate Teen Against HPV

National Immunization Survey-Teen, 2013

Parents of Girls			Parents of Boys		
Reason	%	95% CI	Reason	%	95% CI
Lack of knowledge	15.5	13.0-18.5	Not recommended	22.8	20.6-25.0
Not needed or necessary	14.7	12.5-17.3	Not needed or necessary	17.9	15.6-20.1
Safety concern/side effects	14.2	11.8-16.8	Lack of knowledge	15.5	13.7-17.6
Not recommended	13.0	10.8-15.5	Not sexually active	7.7	6.4-9.2
Not sexually active	11.3	9.1-13.9	Safety concern/side effects	6.9	5.6-8.5

Parental Uptake of HPV Vaccination

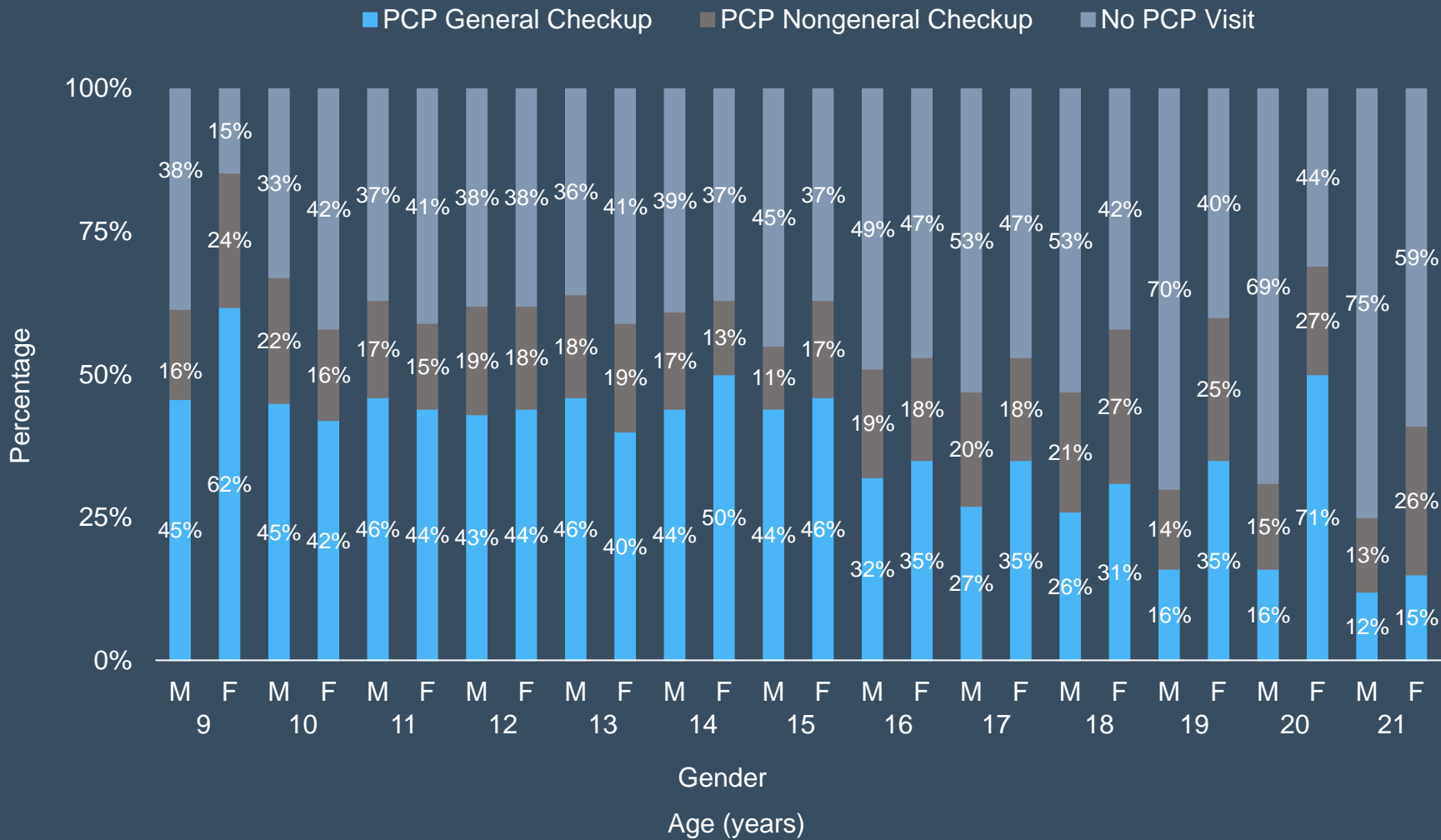
Systematic Review and Meta-analysis

- 79 studies and 840,838 parents across 15 countries
- Pooled uptake of HPV vaccine: 41.5%
 - For girls: 46.5%
 - For boys: 20.3%
- Factors influencing uptake:
 - Physician recommendation ($r=0.46$ (95% CI 0.34 to 0.56))
 - HPV vaccine safety concerns ($r=-0.31$ (95% CI -0.41 to -0.16))
 - Use of preventive check-up, past 12 months ($r=0.22$ (95% CI 0.11 to 0.33))
 - Parents' belief in vaccines ($r=0.19$ (95% CI 0.08 to 0.29))

Clinician Barriers to Vaccination

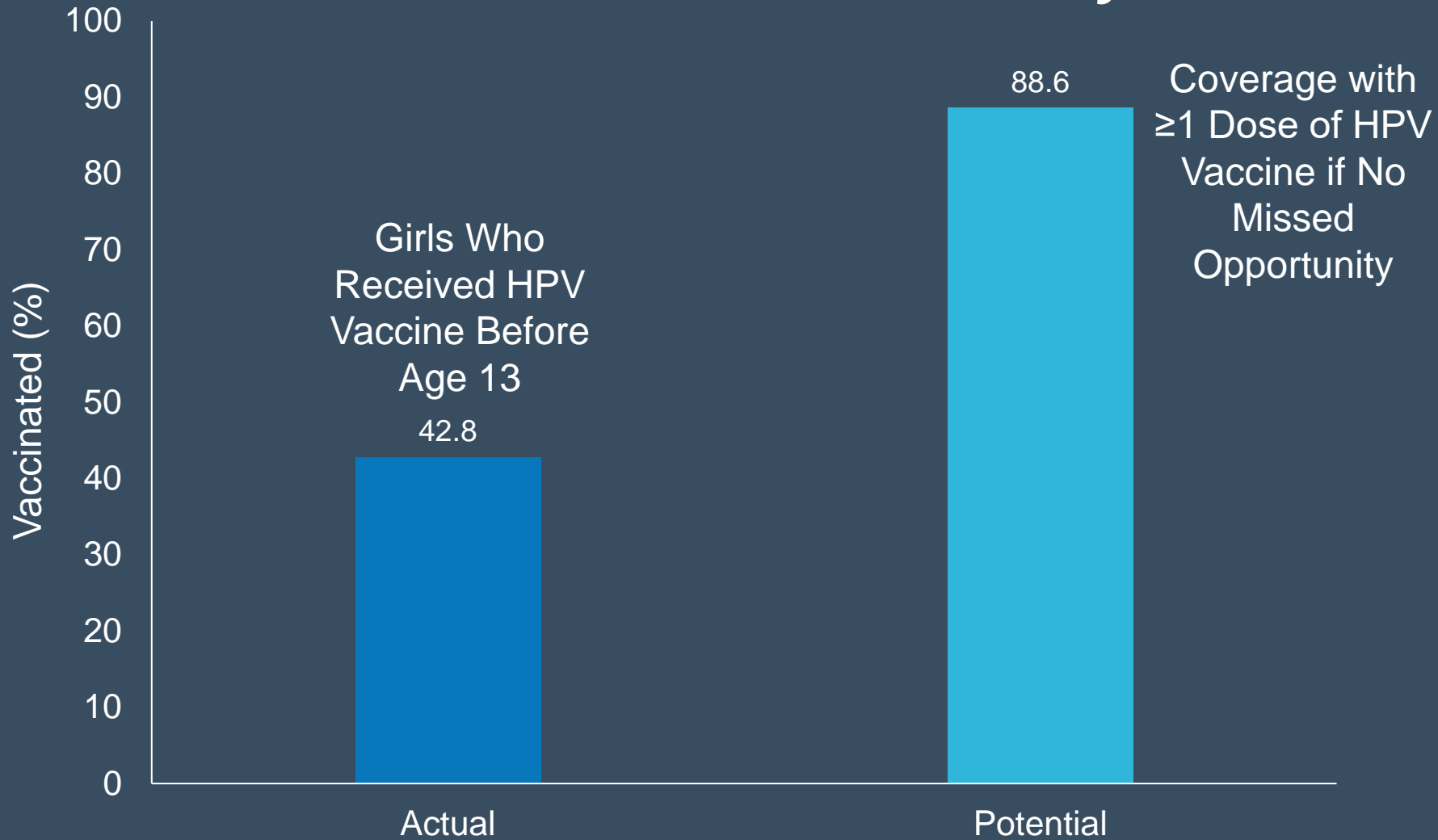
- Competing priorities
- Lack of adolescent preventive care visits
- Missed opportunities
- Failure to provide strong recommendation
 - Lack of clinician recommendation cited as reason for not vaccinating
- Overestimation of parent concerns

Types of Physician Visits in Adolescents



Impact of Missed Opportunities

National Health Interview Survey, 2008-2013



Misconceptions and Fear



does hpv vaccine cause|

- does hpv vaccine cause **infertility**
- does hpv vaccine cause **seizures**
- does hpv vaccine cause **warts**
- does hpv vaccine cause **adem**
- does hpv vaccine cause **death**
- does hpv vaccine cause **ms**
- does hpv vaccine cause **paralysis**
- does hpv vaccine cause **hpv**
- does hpv vaccine cause **bleeding**
- does hpv vaccine cause **headaches**

Google Search

I'm Feeling Lucky

[Report inappropriate predictions](#)



does gardasil cause

- does gardasil cause **ms**
- does gardasil cause **hpv**
- does gardasil cause **adem**
- does gardasil cause **seizures**
- does gardasil cause **weight gain**
- does gardasil cause **polio**
- does gardasil cause **pots**
- does gardasil cause **ovarian failure**
- does gardasil cause **pcos**
- does gardasil cause **paralysis**

Google Search

I'm Feeling Lucky

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Safety Misconceptions

- Early associations with autoimmune events
 - Large epidemiologic studies have not demonstrated an association
- Internet misinformation; sites critical of HPV vaccine frequently appear in searches
- “Antivaccine pseudoscience”
 - Studies linking aluminum in HPV vaccine to neurologic damage have been retracted

Addressing Parental Misconceptions About Safety

- Acknowledge their concerns
 - *“I know there are stories on the internet and in the media about the safety of the HPV vaccine...”*
- Provide reassurance and information
 - *“The HPV vaccine has been well studied, there are no serious side effects, and I feel that it is safe.”*

Quality of Physician Communication

Physician Communication about HPV Vaccination Study

- Online survey (n=776)
 - Pediatricians (53%)
 - Family physicians (47%)

Quality Indicator	Recommendation	Percent
Timeliness	Start recommending vaccine for girls early (≤ 12 years)	74%
	Start recommending vaccine for boys early (≤ 12 years)	61%
Consistency	Use a risk-based approach to recommending HPV vaccine	41%
Urgency	Recommend same-day vaccination	51%

Quality of Physician Communication

Physician Communication about HPV Vaccination Study

- A brief, persuasive statement received the highest proportion of parent (65%) and physician (69%) endorsement:

“I strongly believe in the importance of this cancer-preventing vaccine for [child’s name].”

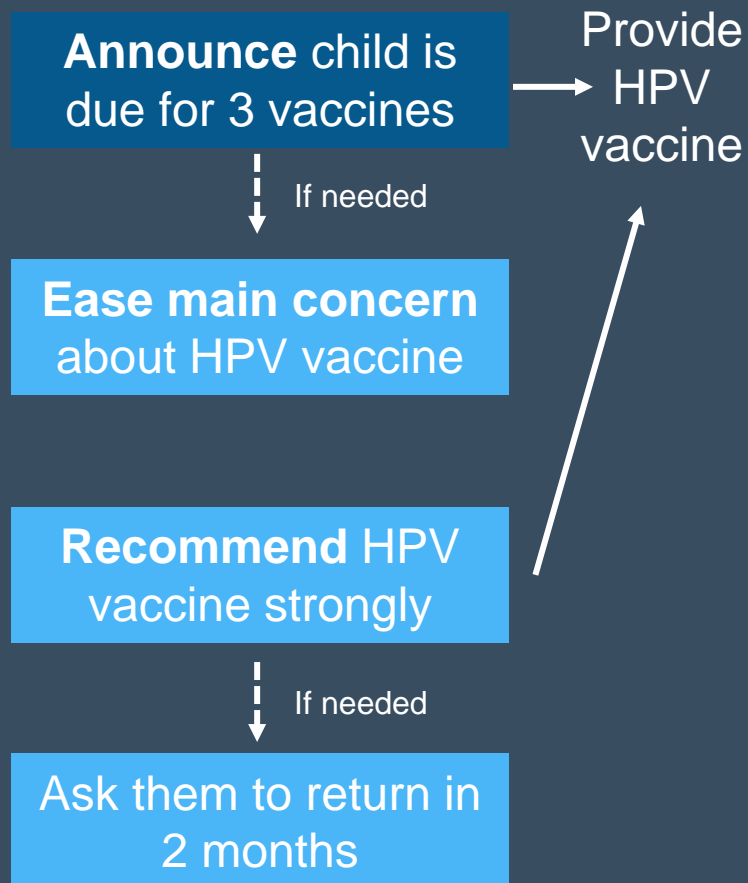
- Parents also endorsed messages on:
 - Vaccine safety and effectiveness
 - Importance of vaccinating prior to sexual activity
 - HPV infection being common
 - Cancer prevention

Communication Style and Vaccination Rates

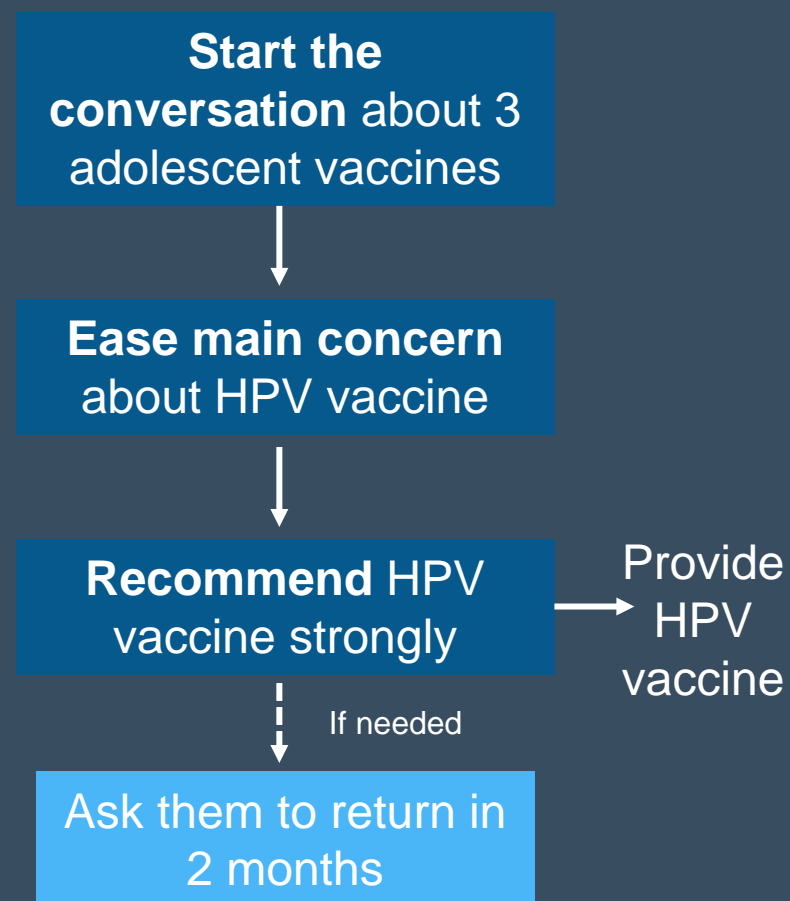
Communication Style	N (%)	N (%) Vaccinated
Strength of recommendation		
No recommendation	25 (33%)	7 (28%)
Weak	19 (25%)	5 (26%)
Moderate	26 (35%)	8 (31%)
Strong	5 (7%)	2 (40%)
Presumptive language		
Yes	11 (15%)	8 (73%)
No	64 (85%)	14 (22%)
Offer of delay		
Yes	49 (65%)	3 (6%)
No/unclear	26 (35%)	19 (73%)
Reference to vaccinating own child		
Yes	13 (17%)	3 (23%)
No	62 (83%)	19 (31%)

Announcements Versus Conversations

Announcement Training



Conversation Training



- Parallel-group randomized clinical trial of 30 pediatric/family medicine clinics
- Trained in announcements (brief presumptive statements) or conversations (engaging parents in open-ended discussions)
- Use of announcements resulted in clinically meaningful increases in HPV vaccinations

Refined Messages to Address Hesitancy

Topic	Sample Message
Lack of knowledge	
Diseases prevented by HPV vaccine	Over 30 000 Americans get cancer from HPV every year. Most could be prevented with the HPV vaccine.
The age to start HPV vaccine series	Kids respond more strongly to the HPV vaccine when they are younger. This may give better protection against some cancers.
Vaccination for boys and girls	HPV infections don't care if you're a boy or girl. The virus can cause cancer and many other diseases.
National recommendations for HPV vaccine	Experts at the CDC agree that kids should get the HPV vaccine by age 11 or 12 to prevent several cancers.
Concerns	
Safety and side effects	This vaccine is one of the most studied medications on the market. The HPV vaccine is safe, just like the other vaccines given at this age.
Vaccination for children not sexually active	This really isn't about sex. The HPV vaccine is about preventing cancer
School requirements for vaccination	School requirements don't always keep up with medical science. The HPV vaccine is an important vaccine that can prevent many cancers.

Making a Recommendation

- Recommend with Tdap and meningococcal vaccines
 - In the *same* way, on the *same* day



Strategies to Increase HPV Vaccination

- Patient-focused
 - Reminder and recall (text, mail, phone, e-mail, etc)
 - Patient education (ie, via video)
- Provider and systems-based interventions
 - Reminder prompts
 - Multiple strategy interventions (feedback, incentives)

Call to Action

- Assess vaccination status at every visit
- Provide a strong recommendation for HPV vaccination at that visit
- Implement evidence-based strategies

Action Plan Steps

Identify a Champion

- Help structure
- Drive change

Get Leadership Support

- Engage early
- Required to sustain success

Address Missed Opportunities

- Use every visit to provide vaccination
- Implement interventions (ie, standing order, EMR alerts)

Reduce Financial Barriers

- Ensure accurate billing
- Partner with public health or community providers

Evaluate and Sustain Success

- Implement regular evaluations
- Celebrate success



Every life deserves world class care.