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Increasing HPV Vaccination Rates for Boys

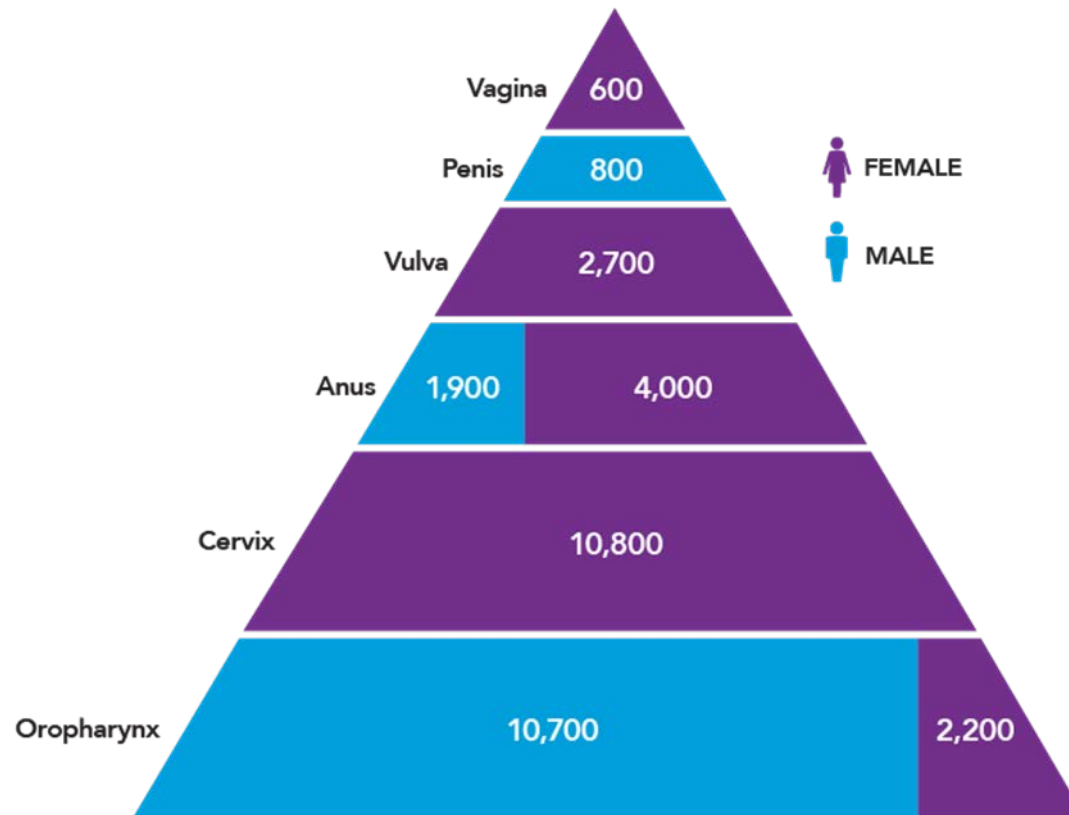
Melanie Kornides has indicated she has no relevant financial relationships within the past 12 months.

Increasing HPV vaccination coverage of boys

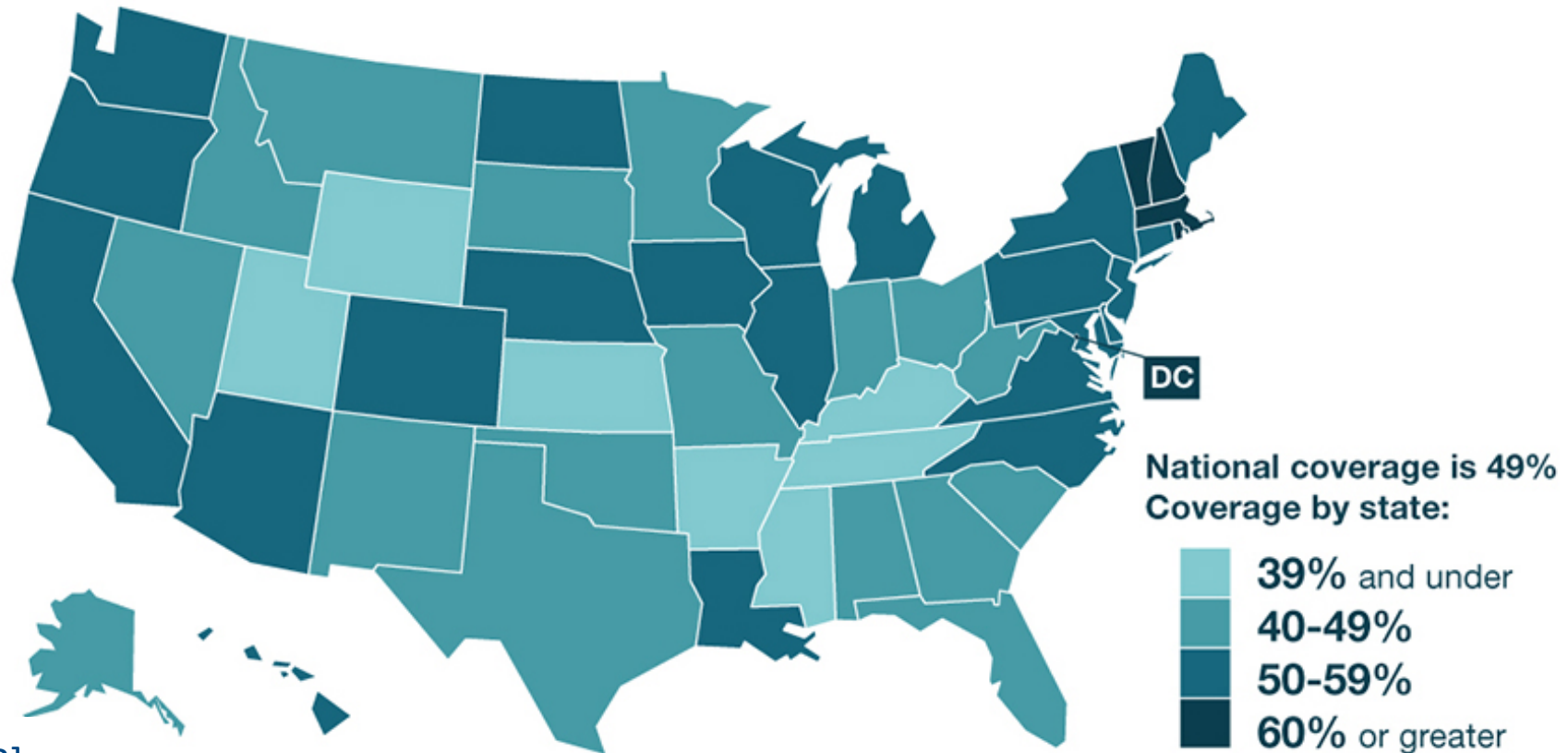
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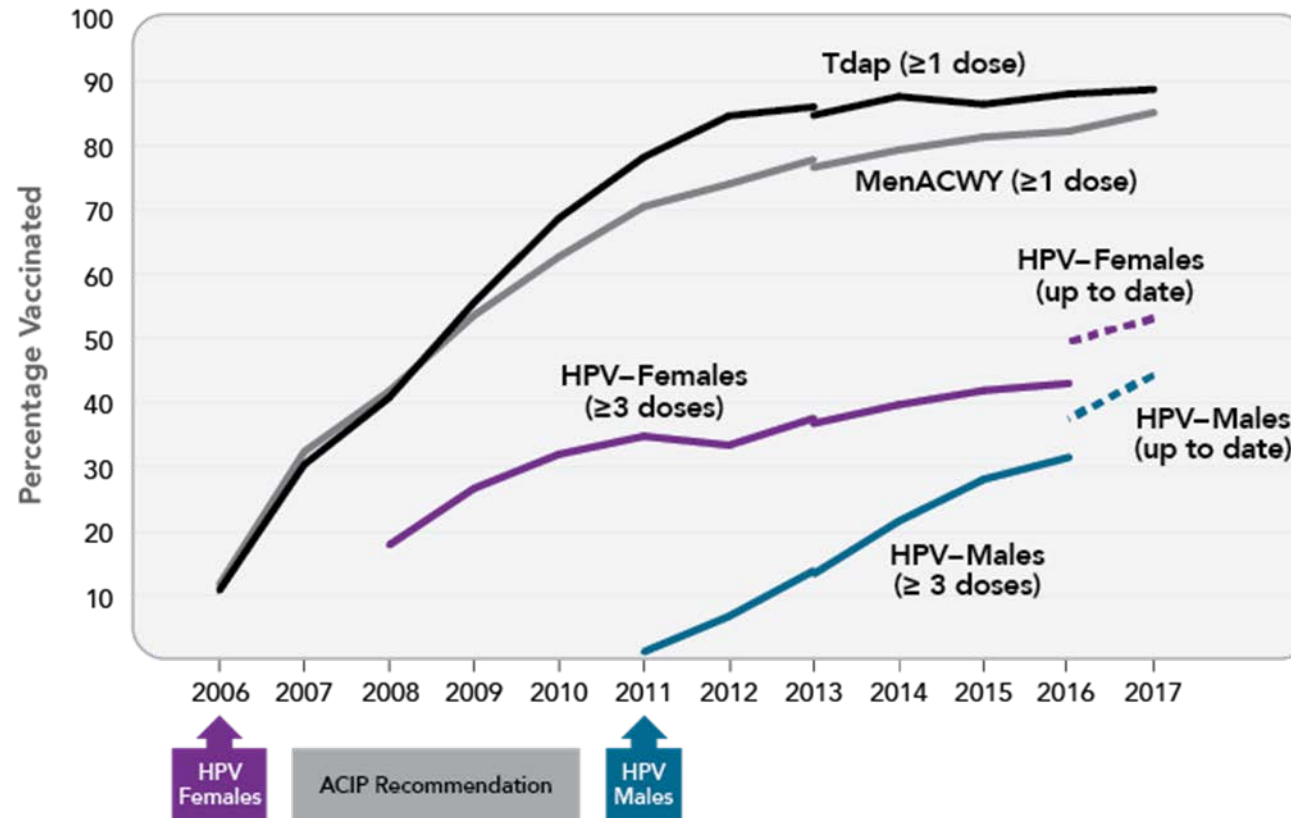
HPV is associated with over 30,000 cases of cancer each year in the U.S. among males and females.



We have not achieved our national goals for HPV coverage among adolescents ages 13-17.



HPV vaccine uptake has remained lower than Tdap and MenACWY from 2006 through 2017.



Why do HPV vaccination rates continue to lag behind other adolescent vaccines?

1. Missed clinical opportunities
2. Parental hesitancy
3. Access



Presumptive announcements help to reduce missed clinical opportunities.

- ✓ Note **child's age**.
- ✓ Announce children this age are **due** for vaccines that prevent several diseases, placing HPV cancers in **middle of list**.
- ✓ Say you will vaccinate **today**.
- ✓ Move on with the visit.

But a presumptive recommendation alone may not be the best strategy for vaccine-hesitant parents.



Now that Sophia is 12, she is due for three vaccines. Today, she'll get vaccines against meningitis, HPV cancers, and whooping cough.



What do parents prioritize in provider communication about HPV vaccine?

Did the provider?

1. Give a **clear message**
2. Spend the **right amount of time**
3. Do a good job **addressing your concerns**
4. Give you a **chance to ask questions**
5. Use **easy to understand** language
6. Tell you about **scheduling** all shots

High satisfaction with provider communication is associated with decreased refusal and delay.

- Parents with high satisfaction were $\frac{1}{2}$ as likely to report refusing the vaccine the first time it was offered
- They were also 2.5 times as likely to initiate the series at any point in time

Communication is especially important for vaccine hesitant parents.

- Parents' satisfaction with provider communication may influence their decision to vaccinate
- Suggests aspects of communication beyond recommendation are important
 - e.g. Adequate time, Addressing concerns, Clear message

Our goal in the intervention study was to increase intent to vaccinate by addressing parents' concerns.

Objectives

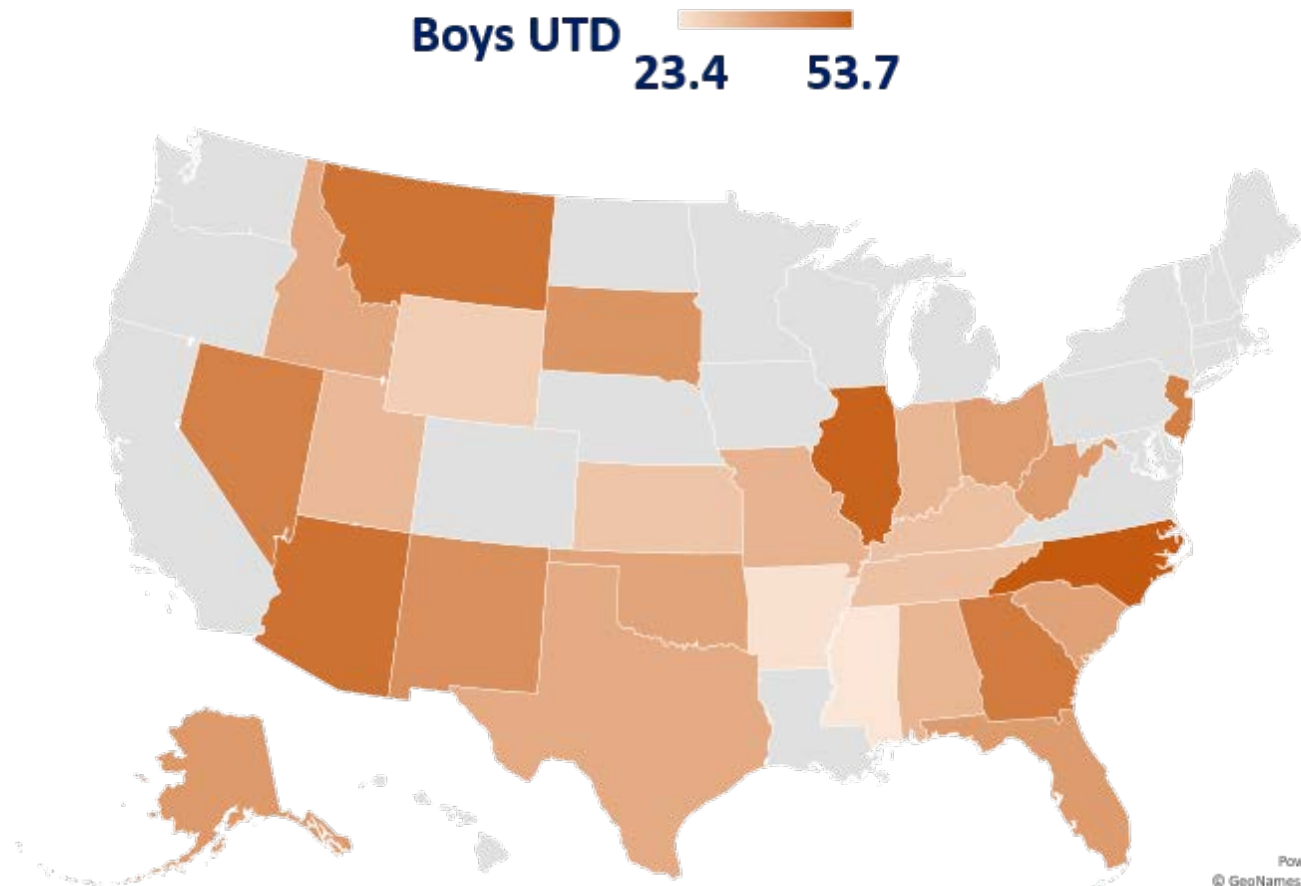
1. Assess if **tailored messaging** to address one vs. all parental concerns increases HPV vaccination intent compared to a bundled recommendation alone among hesitant mothers
2. Assess for differences in response to the intervention between mothers of boys versus girls

- **Study design:** Randomized controlled trial
- **Format:** Online survey and video delivery
- **Time:** September 2018
- **Participants:** 762 mothers of 11-14 year olds
 - Recruited from Survey Sampling International
- **Eligibility:** Low HPV vaccination intent

Boys HPV Vaccination Coverage in 2017

27 states with lowest HPV vaccination uptake

- South: 59%
- Midwest: 28%
- Northeast: 4%
- West: 10%



Eligibility

- Reside in one of the low uptake states
- Mother of 11-14 year old girl or boy
- Did not plan to vaccinate
- English-speaking

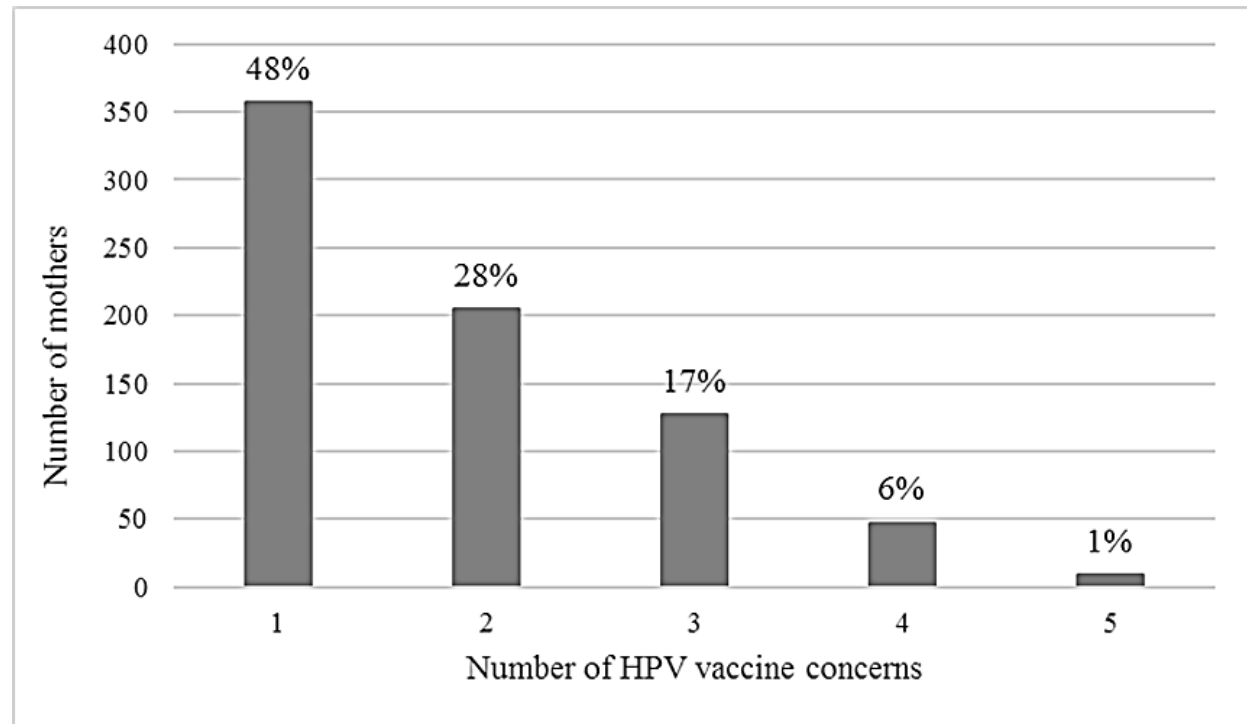


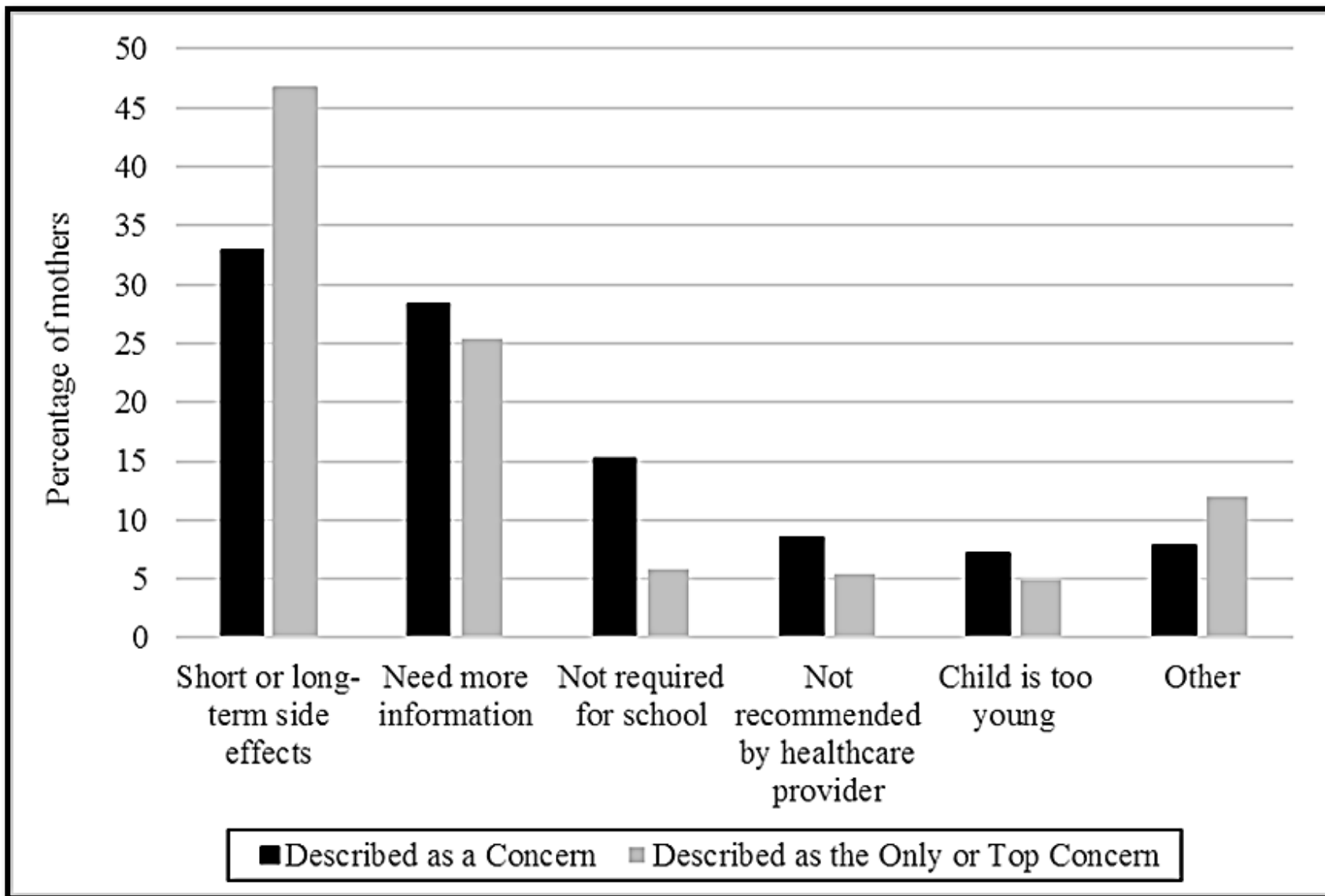
The mothers were similar to those in previous studies of vaccine hesitant parents (n=762).

- 50% with a male child
- Mean child age = 12.4 (SD 1.1)
- 82% White, 9% Black, 9% Other
- 93% Insured
- 38% with a college degree
- 48% ages 31-40

We designed tailored videos addressing 5 common concerns.

1. Side Effects
2. Need more Information
3. Not recommended by HCP
4. Child is too young
5. Not required for School





Mothers were randomized to one of 3 video groups.

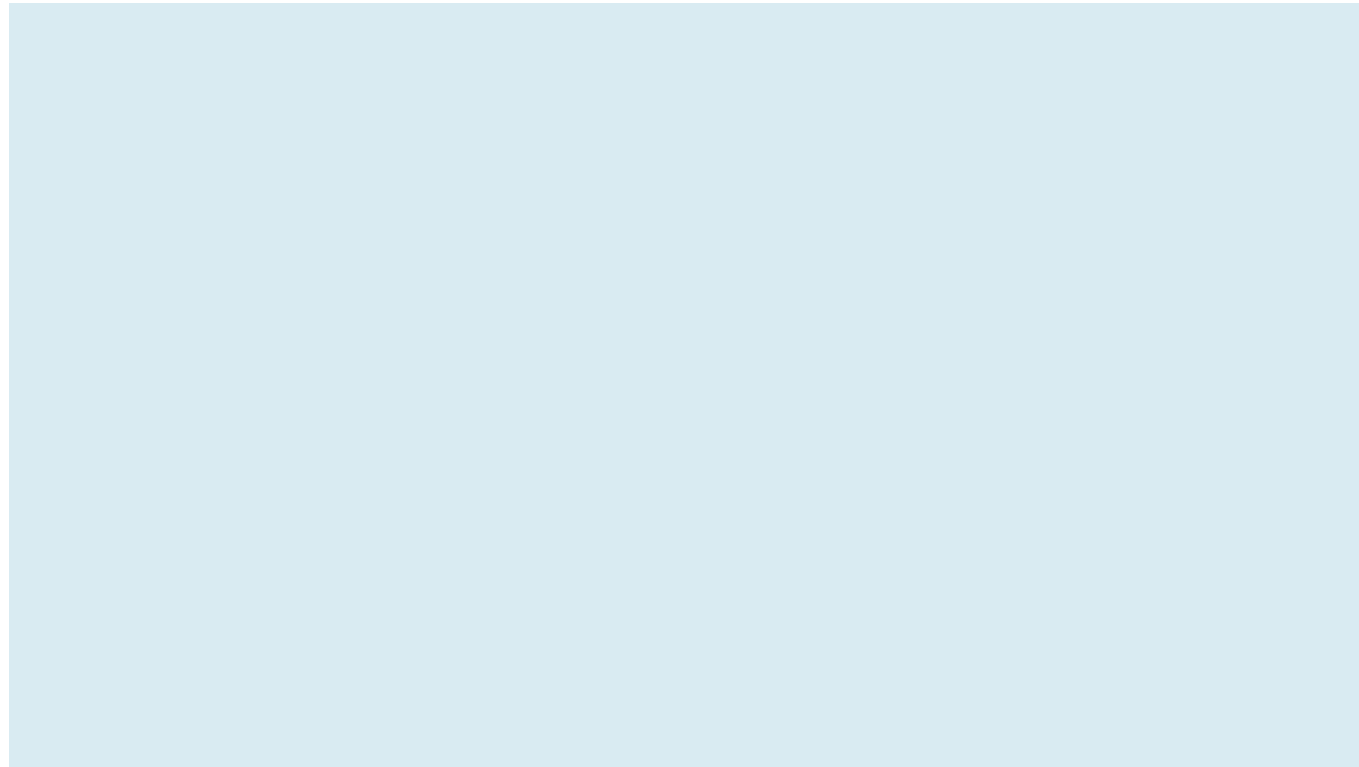
All: General Recommendation +

1.
Control

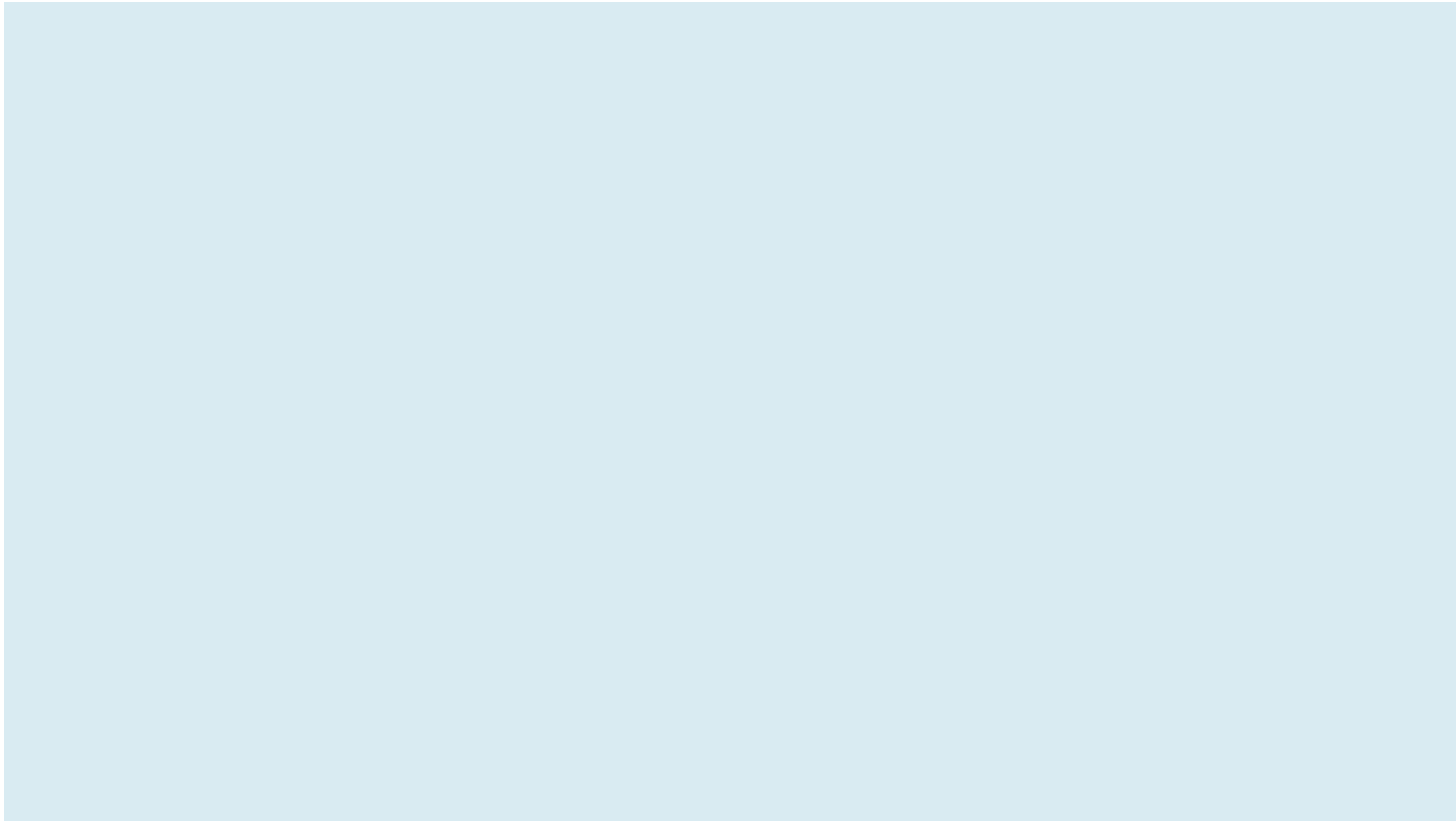
2. Main
Concern

3. All
Concerns

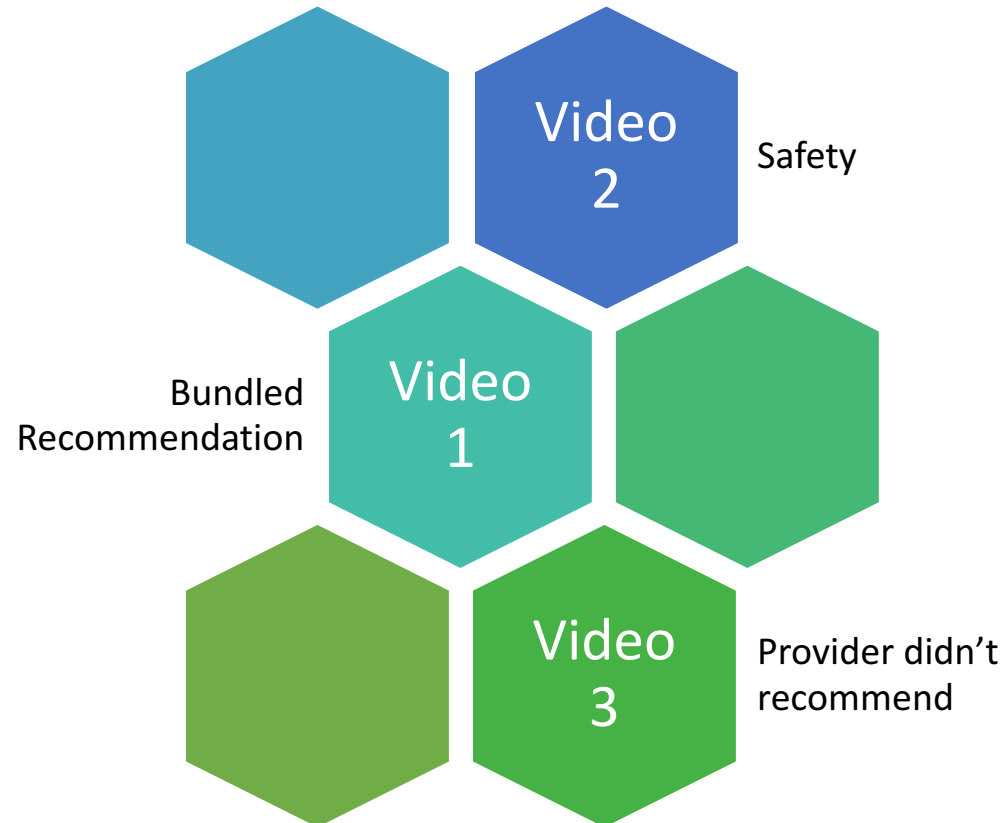
Control group 1 watched a bundled, general video recommendation only (n=267).



Intervention Group 2 watched the general video and a video addressing their top concern (n=252).



Intervention Group 3 watched the general video and videos addressing all their concerns (n=243).



We assessed outcomes immediately after the videos.

1. Vaccination intent

- Likelihood of vaccinating in next 12 months
- 1=Extremely unlikely
- 10=Extremely likely
- *High intent ≥ 6*

2. Strength of main concerns

- 1 = A little concerned
- 10=Very concerned
- *Decreased concern: pre- to post- decrease ≥ 1*

Results: The intervention effect differed among mothers of boys versus girls.



Overall, mothers who watched videos addressing **all** their concerns had the **largest** gains in vaccination intent and reductions in strength of main concern.

Mothers who saw videos for all concerns were 1.7 times more likely to report high vaccination intent ≥ 6

| <u>Intent</u> | Control | Top Concern | All Concerns |
|----------------------------|---------------|---------------|----------------|
| Mean Score | 3.5 (3.2-3.8) | 3.9 (3.6-4.2) | 4.2 (3.8-4.6)* |
| % High Intent | 24.3 | 34.1 | 35.9 |
| Odds Ratio for High Intent | Reference | 1.6 (1.1-2.3) | 1.7 (1.2-2.5) |

P=0.002

Mothers who saw videos for all concerns were 2.2 times more likely to decrease the strength of their main concern by ≥ 1

| <u>Main Concern</u> | Control | Top Concern | All Concerns |
|--------------------------|---------------|---------------|---------------|
| Mean Score | 7.3 (6.9-7.6) | 7.1 (6.7-7.5) | 6.9 (6.6-7.3) |
| % with decrease | 21.3 | 34.2 | 37.7 |
| OR for decreased concern | Reference | 1.9 (1.3-2.8) | 2.2 (1.5-3.3) |

Null findings

- No significant difference between control and top concern group in mean intent to vaccinate
 - $P=0.07$
- No significant difference between groups in strength of main concern
 - For all groups, the most frequent change in score from pre- to post was 0 (no change)

What about mothers of boys versus girls?

| <u>Intent</u> | Control | Top Concern | All Concerns |
|---------------|-------------|---------------------------------|----------------------------------|
| Mean Score | | | |
| Girls | 3.29 | 3.98 ($p=.03$) | 3.99 ($p=.03$) |
| Boys | 3.64 | 3.81 ($p=.6$) | 4.41 ($p=.03$) |

Results of stratified GLM controlling for mothers education

Addressing all concerns was more effective for mothers of boys than girls.

| <u>High Intent</u> | Control | Top Concern | All Concerns |
|--------------------|------------|-------------|--------------|
| % High Intent | | | |
| Girls | 22% | 39% | 35% |
| Boys | 27% | 30% | 37% |

Mothers of boys and girls had similar concerns.

| Top concern for girls (n=374) | % |
|-------------------------------|----------|
| Side effects | 48 |
| Need more info | 25 |
| Not required for school | 5 |
| Not recommended by HCP | 4 |
| Child is too young | 5 |

| Top concern for boys (n=371) | % |
|-------------------------------|----------|
| Side effects | 46 |
| Need more info | 26 |
| Not required for school | 6 |
| Not recommended by HCP | 7 |
| Child is too young | 5 |

Implications For Practice

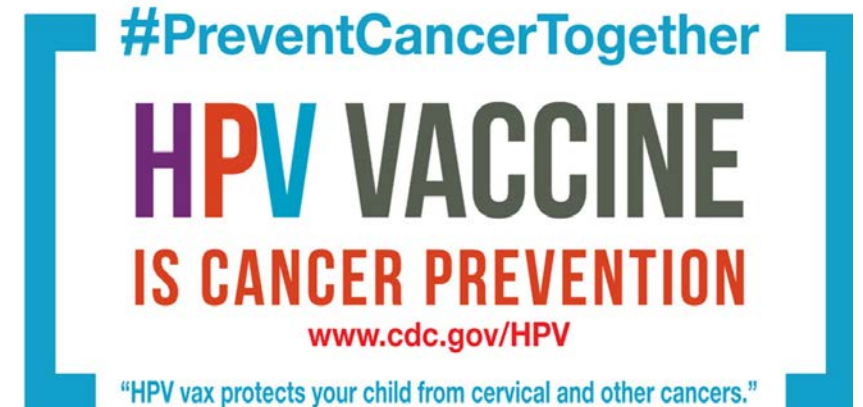


Addressing all concerns with tailored messages may increase intent to vaccinate among hesitant mothers.

- Over half (52%) of mothers had more than one concern
- Concerns over **side effects** and needing **more information** were most frequent

Addressing all concerns versus top concern only may be more important for mothers of boys.

- Top concern was the same for mothers of boys and girls: Side effects
- Increase provider recommendations for boys

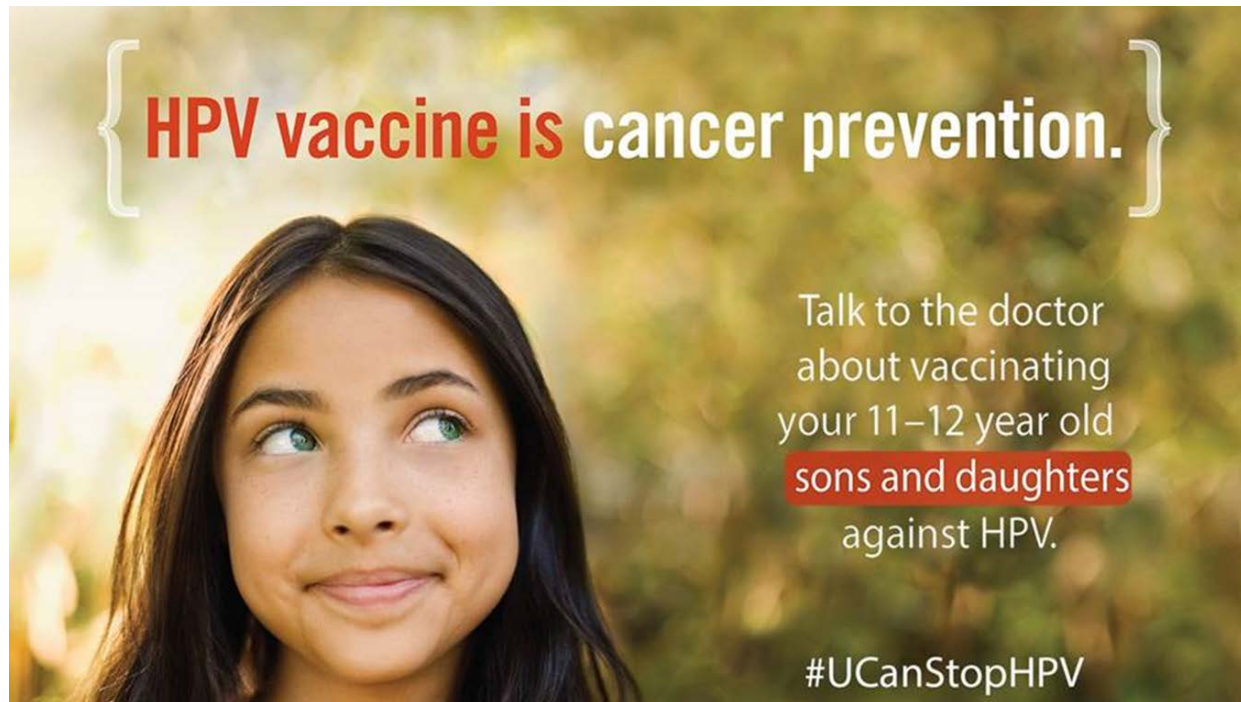


What are evidence-based strategies to address parent concerns?

1. Allow adequate time for the discussion
2. Give clear information about the benefits for boys and girls
3. Elicit parents' questions
4. Avoid expressing urgency to vaccinate

(Shah et al, Pediatrics, 2019; Kornides et al, Vaccine, 2018; Kornides et al, Academic Pediatrics, 2018)

Conclusion: Addressing parent concerns may help reduce missed clinical opportunities to vaccinate boys and girls.



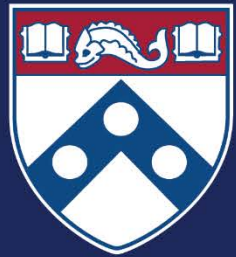
{ **HPV vaccine is** cancer prevention. }

Talk to the doctor
about vaccinating
your 11–12 year old
sons and daughters
against HPV.

#UCanStopHPV

Acknowledgments

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