No False Sense of Security: Knowledge of Cervical Cancer Screening Requirements after the HPV Vaccine

Rebecca Anhang Price MS[1], Jill Koshiol PhD[2], Kia Davis MPH[1], Sarah Kobrin PhD MPH[3], Jasmin A. Tiro PhD[4]

[1] Clinical Monitoring Research Program, SAIC-Frederick, Inc.
[2] Epidemiology and Biostatistics Program, Division of Cancer Epidemiology and Genetics, NCI
[3] Behavioral Research Program, Division of Cancer Control and Population Sciences, NCI
[4] Department of Clinical Sciences, University of Texas Southwestern Medical Center

Background

- The first human papillomavirus (HPV) vaccine, Merck's Gardasil®, was introduced in 2006.
  - The vaccine protects against HPV 16 and 18, two carcinogenic strains of HPV responsible for approximately 70% of cervical cancers.
- However, neither the existing vaccine, nor its upcoming competitor Cervarix®, confers broad protection against all high risk types of HPV.
  - In addition, vaccine recipients may have been exposed to carcinogenic types of HPV before vaccination.
- Therefore, routine cervical cancer screening is recommended for both vaccinated and unvaccinated women.
- Some have expressed concern that women will believe that the vaccine confers complete protection against cervical cancer, and therefore, not know about or participate in required continued screening.
- Such misperceptions could be particularly harmful among:
  - Women of lower education and income, who currently under-use cervical cancer screening; and
  - Racial and ethnic minorities and those of lower socioeconomic status, who experience a disproportionate burden of cervical cancer.

Research Objectives

- To assess whether adult women know about cervical cancer screening requirements after the HPV vaccine.
- To evaluate whether knowledge of screening requirements differs across groups at greatest risk for poor screening adherence and cervical cancer.
- To determine which sources of health information are associated with knowledge of screening requirements.

Methods

Data

- Data were from the National Cancer Institute's 2007 Health Information National Trends Survey (HINTS), conducted from January through April of 2008.
- National probability sample of general adult population (18+), with over-sampling of ethnic-minority populations
- Study sub-sample was composed of female respondents who had heard of HPV, had no history of cervical cancer, were between ages 18 and 75, and were telephone respondents (n = 1,586).

Outcome Measure

- "Do you think women who get the cervical cancer vaccine or HPV shot should continue to get screened for cervical cancer with the Pap test?" (Yes/No/Don't Know)

Independent Variables

- *Sociodemographic characteristics:* age, race/ethnicity, education, income, and marital and parental status
- *Health care access*: presence of insurance coverage, usual health care provider, and a health care visit within the past year
- *HPV knowledge*: knowledge that HPV is carcinogenic, sexually transmitted and can go away on its own
- *HPV vaccine knowledge and communication:* awareness, discussions of, and intentions to vaccinate a daughter with the HPV vaccine
- *Health information seeking behavior*: ever having looked for health or cancer information and seeking health information on the Internet
- *Personal history of HPV, genital warts or cancer*
- *Familial history of cancer*
- *Cervical cancer screening practices*: Pap test history and plans for future Pap testing

Analyses

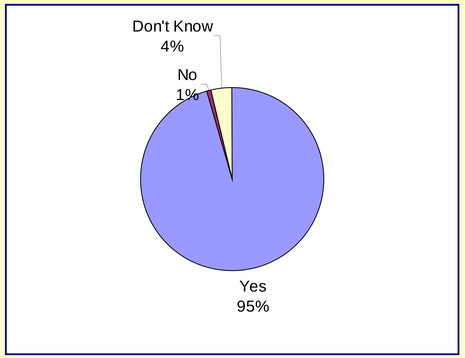
- Chi-square tests were used to assess univariate associations.
  - Multivariate analyses were not possible given the limited distribution of responses for the outcome variable.
- Analyses were conducted using SUDAAN 9.0.1 to account for complex sampling design.

Results

Sample Description

		Weighted % (n)
Age	18-29	25% (397)
	30-64	67% (1,063)
	65-75	8% (127)
Race/ Ethnicity	Non-Hispanic White	72% (1,109)
	Non-Hispanic Black	13% (154)
	Hispanic	10% (200)
	Other	6% (92)
Education	Less than High School	8% (125)
	High School Grad	26% (405)
	Some College/Tech School	37% (577)
	College Graduate or More	29% (452)
Income	<$15,000	8% (104)
	$15,000 - $34,999	20% (261)
	$35,000 - $49,999	18% (235)
	$50,000 or more	54% (704)
Health Insurance	Yes	87% (1,376)

% Belief that Women Should Receive Continued Pap Screening after the HPV Vaccine



This knowledge did not vary by race or ethnicity, education, income, or health care access.

- Factors associated with higher knowledge ($p<0.01$):
  - Previous HPV infection
  - Intention of Pap test within the next three years
  - Knowledge that HPV can cause cervical cancer
  - Talked to health care provider about HPV vaccine
  - Internet most recent source of health information

Discussion

- Analysis of a nationally representative sample provides encouraging preliminary evidence that women are knowledgeable about the importance of continued cervical cancer screening after receipt of the HPV vaccine.
- This knowledge varies little across income, education, or racial/ethnic groups, suggesting that subgroups of women with traditionally lower rates of cervical cancer screening are appropriately informed about the need for continued screening after HPV vaccination.
- Policy analyses of HPV vaccine strategies suggest that widespread use of the HPV vaccine will be cost-effective only if cervical cancer screening intervals are reduced.
  - However, overuse of Pap tests was common even before the introduction of the HPV vaccine, perhaps reflecting both physicians' and women's enthusiasm for participating in routine cancer screening.
- Our findings may foretell women's desire to continue screening at pre-vaccine intervals, even if updated clinical guidelines recommend less frequent screening.

Limitations

- Like many recent large telephone surveys, HINTS 2007 has a modest response rate, raising concerns about possible selection effects.
- Only those who had heard of HPV were asked whether they knew about continued need for cervical cancer screening after the HPV vaccine.
- Although the HPV vaccine is recommended primarily for adolescents, HINTS data are collected only from adults, and many of the respondents in our sample were older than age 26, the maximum recommended age for catch-up vaccination.

Research Priorities

- Future studies are needed to examine whether adolescent females who receive the HPV vaccine are aware of, and adhere to, screening guidelines as they become eligible.