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

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Background

• The first human papillomavirus (HPV) vaccine, Merck’s Gardasil®, was introduced in 2006.
  – The vaccine protects against HPV 16 and 18, two oncogenic 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 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.

Methods

Data

• Data were from the National Cancer Institute’s 2007 Health Information National Trends Survey (HINTS), conducted from January through April of 2007.
• 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, but 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

• Socio-demographic 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

<table>
<thead>
<tr>
<th></th>
<th>Don’t Know</th>
<th>No</th>
<th>Yes</th>
<th>% Weighted (n)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>18-29</td>
<td>30-64</td>
<td>65+</td>
<td></td>
</tr>
<tr>
<td>25%</td>
<td>67%</td>
<td>8%</td>
<td>(139)</td>
<td>(1,063)</td>
</tr>
<tr>
<td>Race/Ethnicity</td>
<td>Non-Hispanic White</td>
<td>Non-Hispanic Black</td>
<td>Hispanic</td>
<td>Other</td>
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<tr>
<td>72%</td>
<td>13%</td>
<td>10%</td>
<td>6%</td>
<td>(1,106)</td>
</tr>
<tr>
<td>Education</td>
<td>Less than High School</td>
<td>High School Grad</td>
<td>Some College/Tech School</td>
<td>College Graduate or More</td>
</tr>
<tr>
<td>8%</td>
<td>36%</td>
<td>48%</td>
<td>57%</td>
<td>(125)</td>
</tr>
<tr>
<td>Income</td>
<td>&lt;$15,000</td>
<td>$15,000 - $34,999</td>
<td>$35,000 - $49,999</td>
<td>$50,000 or more</td>
</tr>
<tr>
<td>8%</td>
<td>20%</td>
<td>26%</td>
<td>25%</td>
<td>(134)</td>
</tr>
<tr>
<td>Health Insurance</td>
<td>Yes</td>
<td>No</td>
<td>Don’t Know</td>
<td>(1,176)</td>
</tr>
</tbody>
</table>

% Belief that Women Should Continue Pap Screening after the HPV Vaccine

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 cervical screening.
• Our findings may forecast 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.