Initiation of HPV Vaccination for Females: Does an Electronic Reminder System Influence Vaccination Coverage

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Background

- Human papillomavirus (HPV)
  - 5% of cancers worldwide
  - Most common STI in the US

- Two HPV vaccines available
  - Gardasil® (HPV4) and Cervarix® (HPV2)
  - Indicated for females ages 9-26 years
  - Prevention of cervical and anal cancer and pre-cancers
Objectives

• Evaluate whether posting a reminder in the electronic health record will increase rate of initiating the HPV vaccine series

• Identify factors related to vaccination
Methods

• Sample
  – Female patients 9-25 years of age without HPV vaccination

• Electronic reminder posted in patient’s record
  – Stating patient eligible for vaccination
  – Three month study period

• Proportion of subjects starting the series was compared to population estimate
Table 1. HPV Vaccination Coverage by Certain Characteristics

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>No. in sample</th>
<th>%</th>
<th>HPV Coverage (%)</th>
<th>HPV Coverage (95% CI)</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>61</td>
<td>100.0</td>
<td>8.2</td>
<td>2.7 - 18.1</td>
<td>0.25*</td>
</tr>
<tr>
<td>Age Group (yrs)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt;18</td>
<td>22</td>
<td>36.1</td>
<td>13.6</td>
<td>2.9 - 34.9</td>
<td>0.34**</td>
</tr>
<tr>
<td>&gt;18</td>
<td>39</td>
<td>63.9</td>
<td>5.1</td>
<td>0.6 – 17.3</td>
<td></td>
</tr>
<tr>
<td>Provider Type</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Faculty</td>
<td>6</td>
<td>9.8</td>
<td>33.3</td>
<td>4.3 – 77.7</td>
<td>0.07**</td>
</tr>
<tr>
<td>Resident</td>
<td>55</td>
<td>90.2</td>
<td>5.5</td>
<td>1.1 – 15.1</td>
<td></td>
</tr>
<tr>
<td>Visit Type</td>
<td></td>
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<tr>
<td>Acute</td>
<td>48</td>
<td>78.7</td>
<td>2.1</td>
<td>0.05 – 11.1</td>
<td>0.006**</td>
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<tr>
<td>Wellness</td>
<td>13</td>
<td>21.3</td>
<td>30.8</td>
<td>9.1 – 61.4</td>
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<tr>
<td>Vacc. Status Addressed</td>
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<td></td>
<td></td>
<td></td>
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<tr>
<td>Yes</td>
<td>9</td>
<td>14.8</td>
<td>33.3</td>
<td>7.5 – 70.1</td>
<td>0.01**</td>
</tr>
<tr>
<td>No</td>
<td>52</td>
<td>85.2</td>
<td>3.9</td>
<td>0.47 – 13.2</td>
<td></td>
</tr>
</tbody>
</table>

*Compared to baseline population estimate of 14%
** p-value from Fisher’s exact test
Results

- Electronic reminder of HPV vaccine eligibility did not significantly affect vaccination rate in this population (8.2% vs. 14% population estimate)

- HPV vaccine was more likely to be initiated at wellness visits vs. acute visits (30.8% vs. 2.1%)

- HPV vaccine initiation was significantly higher when status was addressed (33.3% vs. 3.9%)

- Patient age and provider type were not significantly associated with HPV vaccine initiation
Conclusions

• Addressing vaccination status with patients improves vaccination rates

• Vaccinations are more likely to be given at wellness visits than acute visits

• One strategy to improve HPV vaccination rates would be to address status and vaccinate at all visits rather than just wellness visits
Discussion

• Electronic reminders may still be effective tools to improve vaccination rates
  – Variations in the design of decision support tools needs further study

• Study limitations
  – The period of our study (Oct – Dec) did not correlate with timing of the highest volume of pediatric visits, thereby limiting our sample size
  – Demographics of our clinic population make vaccination cost prohibitive for some
References

