Evaluation of the HPV Vaccination Rate and Identification of Facilitators and Barriers to the HPV Vaccination Uptake

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Introduction

Background:
- The HPV vaccine is 90% effective in preventing nine types of cancer: 1
- High prevalence in rural low-income areas
- 2nd most costly STI in the US (HIV: $755 million in 2018)1

Problem:
- HPV uptake remains lower than the Healthy People 2020 goal of 80% of adolescents age 13-15 years vaccinated.2
- 2013 HPV Completion Rate: 2:
  - National: 54.2%
  - Iowa: 44.9%
  - Muscatine County: 43.6%

Although the Mercy West Liberty (MWL) Family Medicine Clinic The HPV wanted to improve adolescent HPV vaccination rates the prevalence of HPV vaccination provided by the clinic was unknown.

Purpose:
To conduct a quality improvement project that will:
- Determine baseline data of the HPV vaccination rate at Mercy West Liberty (MWL).
- Identify facilitators and barriers to the HPV vaccination uptake.

Objectives:
1. Determine baseline HPV vaccination rates and compare to rates of other adolescent vaccines at MWL.
2. Describe MWL health professional’s knowledge and attitudes about the HPV vaccine.
3. Identify facilitators and barriers to HPV vaccination uptake at MWL.

Methods

Project: was deemed not human subjects research.

The Iowa Model® guided this quality improvement project (Fig. 1).

Setting: Mercy West Liberty (MWL) Family Medicine Clinic.

Sample:
- 125 visit records of adolescents (age 11-18) between January 1, 2019 to September 1, 2020.

Approach

Objective 1: Determine baseline HPV vaccination rates.
- Intellectus™ software used to analyze 20 months of EHR data.
- Demographic data collected included age, role in clinic, years at clinic.
- Open-ended interviews used to gain health professional perspectives.

Objective 2: Describe health professional’s knowledge and attitudes about the HPV vaccine.
- Used survey questions adapted from existing tools and the literature.
- Demographic data collected included age, role in clinic, years at clinic.
- Knowledge measured by correct/false/correct response to True/False questions.
- Attitudes measured by a 4-point Likert scale.

Objective 3: Identify facilitators and barriers to HPV vaccination uptake.
- Open-ended interviews used to elicit professional perspectives
- Questions developed using clinical experience and the literature.
- Data analyzed using basic content analysis.

Results

Table 1. Characteristics of the Clinical Data Sample of Adolescents, 11-18 year olds seen at Mercy Clinic, West Liberty for vaccination from January 1, 2019 to September 1, 2020. (N = 125)

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Age</th>
<th>n (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>11-14 years</td>
<td>53</td>
<td>42.4%</td>
</tr>
<tr>
<td>15-18 years</td>
<td>72</td>
<td>57.6%</td>
</tr>
<tr>
<td>Gender</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>60</td>
<td>48.0%</td>
</tr>
<tr>
<td>Female</td>
<td>65</td>
<td>52.0%</td>
</tr>
<tr>
<td>Race</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Caucasian</td>
<td>62</td>
<td>49.6%</td>
</tr>
<tr>
<td>Hispanic</td>
<td>54</td>
<td>43.2%</td>
</tr>
<tr>
<td>Other</td>
<td>9</td>
<td>7.2%</td>
</tr>
<tr>
<td>Completed HPV series</td>
<td>65</td>
<td>52.0%</td>
</tr>
<tr>
<td>Yes</td>
<td>60</td>
<td>48.0%</td>
</tr>
<tr>
<td>No</td>
<td>36</td>
<td>29.4%</td>
</tr>
</tbody>
</table>

Objectives: Determine baseline HPV vaccination rates (Table 1).
- All adolescent vaccination rates were below HPV(2013) goals for the study period.
- HPV series completion rates lower than national and state standards but higher than Muscatine county.
- Peak vaccination rate in August (Figure 4).
- Unexpected gaps in vaccination visits related to COVID19 (Figure 4).

Demographics of Healthcare Professionals at MWL (Table 3).
- Ages ranged from 25 years to more than 60 years.
- Majority are females.
- Years of experience ranged from 1.5 years to more than 20 years.

Table 2. Characteristics of Healthcare Professionals at Mercy Clinic, West Liberty (N=6).

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>n (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>25-45 years</td>
<td>45</td>
</tr>
<tr>
<td>46-50 years</td>
<td>15</td>
</tr>
<tr>
<td>Age</td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>12</td>
</tr>
<tr>
<td>Female</td>
<td>36</td>
</tr>
<tr>
<td>Race</td>
<td></td>
</tr>
<tr>
<td>Caucasian</td>
<td>72</td>
</tr>
<tr>
<td>Hispanic</td>
<td>60</td>
</tr>
<tr>
<td>Other</td>
<td>6</td>
</tr>
<tr>
<td>Years of experience</td>
<td></td>
</tr>
<tr>
<td>1 year to 5 years</td>
<td>31</td>
</tr>
<tr>
<td>6 years to 10 years</td>
<td>72</td>
</tr>
<tr>
<td>More than 10 years</td>
<td>60</td>
</tr>
</tbody>
</table>

Objectives: Describe health professional’s knowledge and attitudes about the HPV vaccine.

Knowledge:
- Average score of 91% correct
- Areas of lowest knowledge related to: Treatment of HPV infection
- When to give the HPV vaccine

Attitudes:
- All health professionals agreed that HPV vaccination was important for cancer prevention.
- Prior experiences varied and impacted perceived need at the time for change or improvement.
- Healthcare professionals attributed low rates of vaccination to different causes
- Responsibility of HPV vaccine delivery
- Approach and timing of vaccination introduction
- Perception of access
- Perception of parent or adolescent vaccine hesitancy

Objective 3: Identify facilitators and barriers to HPV vaccination uptake.
- Knowledge:
  - Physicians believe getting the HPV vaccine is a “green light” or “permission slip” for sex.
  - Adolescents do not want an extra shot [than those required for routine care].
  - Parents only want vaccines that are required for school.
  - “I tell them they got the [vaccine], and I am fine.”
  - “I tell them the HPV vaccine is also to prevent cancer.”

- Barriers:
  - There is a huge gap in yearly visits to physicians between age 12 to 16 years old unless they are in sports.
  - “There is no in-office for vaccination.”
  - “Can’t get [parent] consent when adolescents come in to visit by themselves.”
  - “I have yet to make it a habit to review vaccines every time adolescents are in the office.”

Conclusions

HPV completion rate along with other immunizations are below the Healthy People Goal of 80%. WHO recommends catch-up vaccination in complex and difficult-to-reach populations.
- It is important to establish baseline vaccination rate prior to implementation of a quality improvement project.
- Targeted interventions will increase success.

Data will be presented at the Midyear meeting.

Acknowledgements

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Evaluation

Objective 1: EHR Analyses
- Younger age associated with increased reception rate (p<0.001).
- No significantly association with gender or race (p>0.06, p=0.57).
- Only 17.6% of adolescents received the HPV vaccine along with meningococcal and TT by 2013.
- Opportunity time to implement interventions would be prior to August 2013.

Objective 2: Survey Analyses
- Healthcare professionals were generally informed.
- Variability in attitudes, experiences, and perceptions could impede how healthcare professionals make recommendations.

Objective 3: Interview Analyses
- Identified three common barriers.

Limitations:
- Retrospective EHR review period may not have captured HPV completion because it is given in series.
- This project only look at administered vaccines
- COVID-19 disrupted vaccination from March to May of 2020.

Recommendations

- Healthcare professionals training:
  - Annunciation delivery of HPV vaccine information
  - Bundle recommendation of vaccines
  - Establish site-specific, and consistent recommendation

- Avoid missed opportunities:
  - Walk-in vaccination
  - Implement prompts and orders to allow for nurse visits only
  - Vaccine at sick visits
  - Consent reminder process prior visits
  - Install reminder systems (letters, electronic messages)

- Re-enrollment into the VFC program
- Increase frequency of MD of Muscian Public Health visits

References