National Immunization Partnership with the APA
Improving HPV Immunization Rates in Practice-Based Settings

Final Project Report for New Hampshire Pediatric Improvement Program

Project Description

The National Immunization Partnership with the Academic Pediatric Association developed the HPV Virtual Learning and Improvement Network to provide infrastructure support for practice-based quality improvement in participating practices. The collaboration brings together the expertise of the Academic Pediatric Association’s Continuity Research Network (CORNET) and the National Improvement Partnership Network (NIPN) in adolescent immunization, practice change, and immunization education. The goal of this learning collaborative was to increase rates of HPV vaccine series initiation and completion through reduction of missed opportunities. During the 9-month intervention phase of this project, practices implemented one or more evidence-based strategies to reduce missed opportunities: provider prompts, standing orders, or reminder-recall. In addition, all practices implemented a strong provider recommendation for HPV vaccine.

Participant Demographics

<table>
<thead>
<tr>
<th></th>
<th>CORNET</th>
<th>NIPN</th>
</tr>
</thead>
<tbody>
<tr>
<td>States</td>
<td>11</td>
<td>6</td>
</tr>
<tr>
<td>Practices</td>
<td>14</td>
<td>38</td>
</tr>
<tr>
<td>Participants</td>
<td>121</td>
<td>190</td>
</tr>
<tr>
<td>Estimated number of patients 11-17 years of age seen annually</td>
<td>20,220</td>
<td>38,320</td>
</tr>
</tbody>
</table>

Blue markers = CORNET sites (represent individual sites)

Green markers = NIPN states (represent multiple sites within the state)
The results shown in the following pages of the report are from data submitted by the 38 practices that participated in the NIPN cohort of the learning collaborative. NH PIP recruited 2 practices in New Hampshire that completed this project (a third practice started the project but did not complete). Results from project surveys (Office Systems Inventory and Staff Impact Survey) are aggregated results from the 38 NIPN practices (individual practice data are not represented). Aggregated data from the New Hampshire practices for missed opportunities and HPV vaccination rates are shown alongside aggregate NIPN data for comparative purposes.
Office Systems Inventory

The Office Systems Inventory assessed what tools and strategies practices had in place to support HPV vaccination efforts prior to the project and again at the end. The percent of practices that consistently provided a strong recommendation for HPV vaccine increased, as did the percent of practices that adhered to one HPV vaccination schedule. Implementation of Provider Prompts, Standing Orders, and Reminder-Recall increased as a result of this project. In addition, the 38 participating practices implemented 136 new office strategies to support HPV immunization.
### HPV Vaccination Systems in Place

- **Standing Orders for HPV**
  - Pre: 56%
  - Post: 71%
- **Reminder-Recall System**
  - Pre: 29%
  - Post: 35%
- **Provider Prompts**
  - Pre: 56%
  - Post: 97%

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### Strategies to Reduce Missed Opportunities

1. **We post an official immunization schedule prominently in our office.**
2. **We provide patient education and resources on the HPV vaccine via handouts, pamphlets or electronic resources.**
3. **We educate nursing and office staff to recognize valid and invalid contraindications to HPV vaccine.**
4. **We ensure that office policies allow HPV vaccination at all visits, including those for a mild illness, and follow-ups, and our practice team encourages vaccination at every opportunity.**
5. **Our providers are trained to administer multiple adolescent vaccinations at one visit.**
6. **If adolescent patients miss well care visits and cannot be rescheduled quickly, we schedule them for ‘shots only’ visits.**
7. **We have delegated a ‘clinic champion’ to keep all clinic staff up-to-date on current recommendations, discuss immunization policy at office meetings and present effective strategies to avoid Missed...**
8. **We have a system in place to order adolescent vaccines in a timely manner to ensure that vaccines are consistently available.**
Staff Impact Survey

The Staff Impact Survey was one of the project's balancing measures to assess whether changes being implemented as part of this project initiative were felt to be beneficial and did not result in increased administrative burden to clinic staff.

![Post-Project Staff Impact Evaluation](image-url)
Missed Opportunities

Measure: Proportion of adolescents 11 through 17 years of age seen for any visit (health supervision, chronic care, acute care, or other) during the intervention period who are eligible for a dose of HPV vaccine and do not receive it at that visit.

Goal: Decrease by 20% over baseline rate

Data source: Pre- and post-project chart audit of 50 randomly selected patients; 25 female and 25 male.

Result: NIPN practices significantly reduced missed opportunities by 28% across all visit types. New Hampshire practices had a 13% decrease in missed opportunities across all visit types.

<table>
<thead>
<tr>
<th>New Hampshire Practice Data</th>
<th>Aggregate Data</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number of Visits Audited</td>
</tr>
<tr>
<td></td>
<td>Pre-Project</td>
</tr>
<tr>
<td>Well Care</td>
<td>53</td>
</tr>
<tr>
<td>Acute</td>
<td>61</td>
</tr>
<tr>
<td>Chronic</td>
<td>21</td>
</tr>
<tr>
<td>Other</td>
<td>0</td>
</tr>
<tr>
<td>Nurse Only</td>
<td>31</td>
</tr>
<tr>
<td>All Visit Types</td>
<td>166</td>
</tr>
</tbody>
</table>

Missed Opportunities by Visit Type

- NH Aggregate
- Well Care
- Acute/Chronic/Other
- Nurse Only

Percent of Visit Type

Pre vs. Post
Total Missed Opportunities (all visit types): All practices

* New Hampshire practice IDs are circled in red
HPV Series Initiation

Measure: The proportion of adolescents 11 and 12 years of age seen for any visit during the defined measurement periods who received the first dose of the series.

Goal: Increase by 10% over baseline rate

Data source: Pre- and post-project chart audit of 50 randomly selected patients; 25 female and 25 male.

Result: NIPN practices had a 13% increase in the rate of HPV series initiation. New Hampshire practices had a 3% increase in the rate of HPV series initiation.

New Hampshire Practice Data

<table>
<thead>
<tr>
<th>Age</th>
<th>Pre-Project</th>
<th>Post-Project</th>
<th>Percent Change</th>
<th>Pre-Project</th>
<th>Post-Project</th>
<th>Percent Change</th>
<th>Pre-Project</th>
<th>Post-Project</th>
<th>Percent Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>≤ 12 years old</td>
<td>61%</td>
<td>64%</td>
<td>4%</td>
<td>63%</td>
<td>52%</td>
<td>-17%</td>
<td>62%</td>
<td>57%</td>
<td>-7%</td>
</tr>
<tr>
<td>13-17 years old</td>
<td>77%</td>
<td>75%</td>
<td>-3%</td>
<td>51%</td>
<td>68%</td>
<td>32%</td>
<td>64%</td>
<td>72%</td>
<td>13%</td>
</tr>
<tr>
<td>All ages</td>
<td>71%</td>
<td>70%</td>
<td>-2%</td>
<td>55%</td>
<td>60%</td>
<td>9%</td>
<td>63%</td>
<td>65%</td>
<td>3%</td>
</tr>
</tbody>
</table>

Aggregate Data

<table>
<thead>
<tr>
<th>Age</th>
<th>Pre-Project</th>
<th>Post-Project</th>
<th>Percent Change</th>
<th>Pre-Project</th>
<th>Post-Project</th>
<th>Percent Change</th>
<th>Pre-Project</th>
<th>Post-Project</th>
<th>Percent Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>≤ 12 years old</td>
<td>55%</td>
<td>63%</td>
<td>14%</td>
<td>53%</td>
<td>55%</td>
<td>3%</td>
<td>54%</td>
<td>59%</td>
<td>8%</td>
</tr>
<tr>
<td>13-17 years old</td>
<td>72%</td>
<td>81%</td>
<td>12%</td>
<td>59%</td>
<td>70%</td>
<td>20%</td>
<td>65%</td>
<td>75%</td>
<td>15%</td>
</tr>
<tr>
<td>All ages</td>
<td>66%</td>
<td>74%</td>
<td>12%</td>
<td>57%</td>
<td>65%</td>
<td>14%</td>
<td>62%</td>
<td>70%</td>
<td>13%</td>
</tr>
</tbody>
</table>
HPV Series Completion

Measure: Proportion of adolescents 13 through 17 years of age seen for any visit between during the defined measurement periods who have completed the 3-dose HPV vaccine series.

Goal: Increase by 10% over baseline rate

Data source: Pre- and post-project chart audit of 50 randomly selected patients; 25 female and 25 male.

Result: NIPN practices had an 8% increase in the rate of HPV series initiation. New Hampshire practices had an 3% increase in the rate of HPV series initiation.

New Hampshire Practice Data

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Females Pre-Project</th>
<th>Females Post-Project</th>
<th>Percent Change</th>
<th>Males Pre-Project</th>
<th>Males Post-Project</th>
<th>Percent Change</th>
<th>All Pre-Project</th>
<th>All Post-Project</th>
<th>Percent Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>≤ 12 years old</td>
<td>22%</td>
<td>36%</td>
<td>64%</td>
<td>44%</td>
<td>20%</td>
<td>-54%</td>
<td>32%</td>
<td>28%</td>
<td>-15%</td>
</tr>
<tr>
<td>13-17 years old</td>
<td>48%</td>
<td>61%</td>
<td>25%</td>
<td>31%</td>
<td>32%</td>
<td>2%</td>
<td>39%</td>
<td>47%</td>
<td>20%</td>
</tr>
<tr>
<td>Total</td>
<td>39%</td>
<td>50%</td>
<td>29%</td>
<td>35%</td>
<td>26%</td>
<td>-26%</td>
<td>37%</td>
<td>38%</td>
<td>3%</td>
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Aggregate Data

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Females Pre-Project</th>
<th>Females Post-Project</th>
<th>Percent Change</th>
<th>Males Pre-Project</th>
<th>Males Post-Project</th>
<th>Percent Change</th>
<th>All Pre-Project</th>
<th>All Post-Project</th>
<th>Percent Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>≤ 12 years old</td>
<td>29%</td>
<td>34%</td>
<td>17%</td>
<td>27%</td>
<td>26%</td>
<td>-4%</td>
<td>28%</td>
<td>30%</td>
<td>7%</td>
</tr>
<tr>
<td>13-17 years old</td>
<td>54%</td>
<td>56%</td>
<td>4%</td>
<td>36%</td>
<td>43%</td>
<td>19%</td>
<td>45%</td>
<td>49%</td>
<td>9%</td>
</tr>
<tr>
<td>Total</td>
<td>46%</td>
<td>48%</td>
<td>6%</td>
<td>33%</td>
<td>37%</td>
<td>12%</td>
<td>39%</td>
<td>43%</td>
<td>8%</td>
</tr>
</tbody>
</table>
Monthly Chart Audits

**Data Source:** Convenience sample of 10 patients per month (5 female, 5 male) for each practice.

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**Total Missed Opportunities**
- **NH**
- **Aggregate**

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**Missed Opportunities by Gender**
- **Females**
- **Males**

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**Percent of Charts with Provider Prompts**
- **NH**
- **Aggregate**

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**Percent of Charts with Standing Orders**
- **NH**
- **Aggregate**

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**Percent of Patients Vaccinated within 30 days of Reminder-Recall Message**
- **NH**
- **Aggregate**

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**Reason Not Vaccinated**
- **Declined**
- **Other**
- **Not documented**

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9/21/2016