A Quality Improvement Study on Adolescent Immunization at a Central Wisconsin Family Practice Residency Clinic

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Context

- Adolescents tend to be behind on immunizations compared to younger children.
- More vaccinations are available for adolescents than have been before.
- Adolescents are typically healthy and do not present to the clinic unless ill.

Exceptions

- This is significant to primary care since vaccinations are key to preventative medicine.
Objectives

- Increase the number of adolescents in our clinic who are up-to-date on their vaccinations.
- Increase parental awareness of current CDC vaccine recommendations.
National Objectives

- Advisory Committee for Immunization Practices (ACIP) recommends:
  - Meningitis, Tdap, HPV for females (3 doses)
  - Catch-up vaccinations for MMR (2 doses), Hepatitis B (3 doses), Varicella (2 doses)

- Healthy People 2010
  - Greater than 90% coverage
National Outcomes

- National Immunization Survey—Teen, by CDC
  - From 2008 to 2009
  - Tdap 40.8% to 55.6%
  - Meningitis 41.8% to 53.6%
  - HPV
    - 1 dose 37.2% to 44.3%
    - 3 doses 17.9% to 26.7%
Ages 13-15, 90% coverage met for:
- Hepatitis B (3 doses)
- Varicella (1 dose)
- MMR (2 doses), 89.0%

CDC conclusions:
- Coverage with routine adolescent vaccines is increasing
- More effort is needed at state and national levels
## Nation vs. Wisconsin

<table>
<thead>
<tr>
<th>Vaccination</th>
<th>Nation</th>
<th>Wisconsin</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tdap</td>
<td>76.2</td>
<td>72.3</td>
</tr>
<tr>
<td>Meningitis</td>
<td>53.6</td>
<td>55.7</td>
</tr>
<tr>
<td>HPV (at least 1 dose)</td>
<td>44.3</td>
<td>49.2</td>
</tr>
<tr>
<td>Hepatitis B (3 doses)</td>
<td>89.9</td>
<td>93.4</td>
</tr>
<tr>
<td>Varicella (at least 1 dose)</td>
<td>87.0</td>
<td>95.7</td>
</tr>
<tr>
<td>MMR (at least 2 doses)</td>
<td>89.1</td>
<td>91.8</td>
</tr>
</tbody>
</table>

Adolescents age 13-17 years.

Notice last 3 vaccinations are typically needed before starting school.

From cdc.gov, Morbidity and Mortality Weekly report, August 20, 2010
Design

- Quality improvement study following the Plan-Do-Check-Act model.

From http://en.wikipedia.org/wiki/Plan-Do-Study-Act_Cycle
Patients

- Current patients of UW Health – Wausau, age 12 to 19, who were in need of vaccinations, as of October 27, 2009.
- There were 424 adolescent patients at the time of the study
  - Included: Meningitis, HPV, Polio, MMR, Hepatitis B, Varicella, Tdap/Td-adult
  - Excluded: Influenza and Hepatitis A
# of Adolescents in Need of Vaccination as of October 27, 2009

Up to date, 126

70.3%

Due, 298
Vaccinations Due as of October 27, 2009

- 537 vaccinations to 298 children

<table>
<thead>
<tr>
<th>Vaccination</th>
<th>Count</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Meningitis</td>
<td>248</td>
<td>46%</td>
</tr>
<tr>
<td>Varicella</td>
<td>46</td>
<td>9%</td>
</tr>
<tr>
<td>Tdap/Td-adult</td>
<td>75</td>
<td>14%</td>
</tr>
<tr>
<td>HPV</td>
<td>150</td>
<td>28%</td>
</tr>
<tr>
<td>Hepatitis B</td>
<td>8</td>
<td>1%</td>
</tr>
<tr>
<td>Polio</td>
<td>5</td>
<td>1%</td>
</tr>
<tr>
<td>MMR</td>
<td>5</td>
<td>1%</td>
</tr>
</tbody>
</table>
Intervention

- A letter was sent to the parents of the 298 patients in need of vaccinations.
- Vaccination Information Sheets (VIS) from the CDC were included with the letter.
- Parents were encouraged to schedule a vaccination appointment, either:
  - during regular clinic hours, or
  - a specific evening we called an “Adolescent Immunization Clinic.”
Outcomes

- 44 - patients made appointments on Adolescent Immunization Clinic night.
  - 2 - no-showed
  - 33 - had gotten a letter
  - 7 - were sibs of adolescents with letters
- 4 - vaccinations declined
  - 2 HPV
  - Meningitis
  - Varicella
Outcomes, cont...

- 65 vaccinations given
  - 30 Meningitis
  - 6 HPV #1
  - 6 HPV #2
  - 4 HPV #3
  - 6 Tdap
  - 2 Varicella
  - 11 influenza, incidental
Outcomes, cont...

- Adolescents age 12-19 in our clinic in need of immunizations
  - Before the intervention
    - 298 of 424 adolescents
    - 70.3%
  - After the intervention
    - 227 of 348
    - 65.2%
Results

- 35 out of the 298 patients were vaccinated the night of the adolescent immunization clinic
  - An 11.7% success rate.
  - Average success rate of letter writing campaign is 10%
- Therefore, the intervention was a success!
Conclusions

- This study demonstrates a good response rate to a letter-writing campaign.
- However, many adolescents are still in need of vaccination in our clinic.
- Another intervention was attempted, but failed.
  - Handing out WIR at Sports Physical Night
  - Not all patients belonged our clinic
  - WIR not given to all patients
  - Unknown if patient shared with parents.
Moving Forward

- Another resident will be taking this project over.
- Hopefully she can find an even more successful intervention for our clinic.
- The Plan-Do-Check-Act model will continue.
Special Thanks to:

- Helen Luce, DO
  - For her guidance.

- Vicki Binder, RN
  - For brainstorming the idea and helping with the follow-through.

- The lovely medical assistants who gave a total of 65 vaccinations in 3 hours.